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SIMPLIFIED SOLAR FRACTION ESTIMATION FOR SPACE AND WATER HEATIN--ETC(U)

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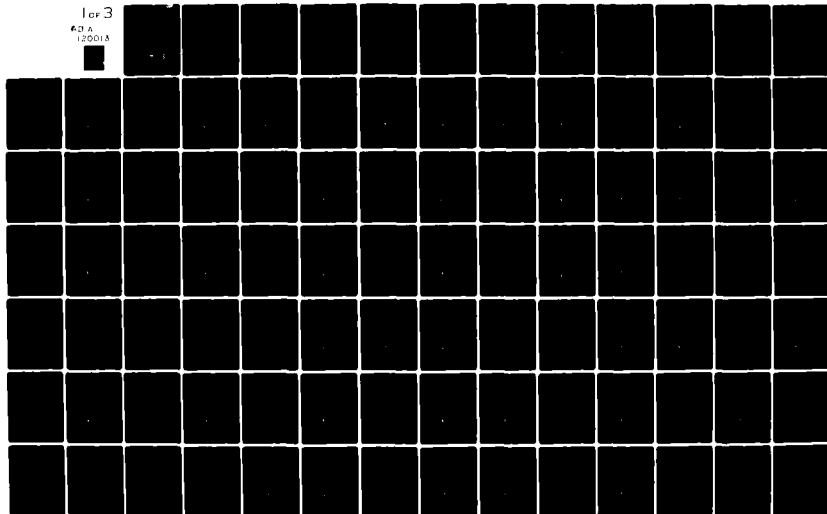
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**SIMPLIFIED SOLAR FRACTION ESTIMATION FOR SPACE
AND WATER HEATING AT DOD INSTALLATIONS
APPENDIX B - SPACE HEATING NOMOGRAPHS**

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**SEPTEMBER 1982
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This research report is presented as a competent treatment of the subject, worthy of publication. The United States Air Force Academy vouches for the quality of the research, without necessarily endorsing the opinions and conclusions of the author.

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THOMAS E. MCCANN, Lt Colonel, USAF
Director of Research and
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report contains a set of nomographs which can be used to estimate the average annual solar fraction for solar space and water heating at a large number of DOD facilities. The solar fraction estimated from the nomograph is in close agreement with F-Chart 3.0 and allows for variation of the following parameters: annual load, collector area, collector transmittance-absorptance coefficient, and collector overall loss coefficient.		

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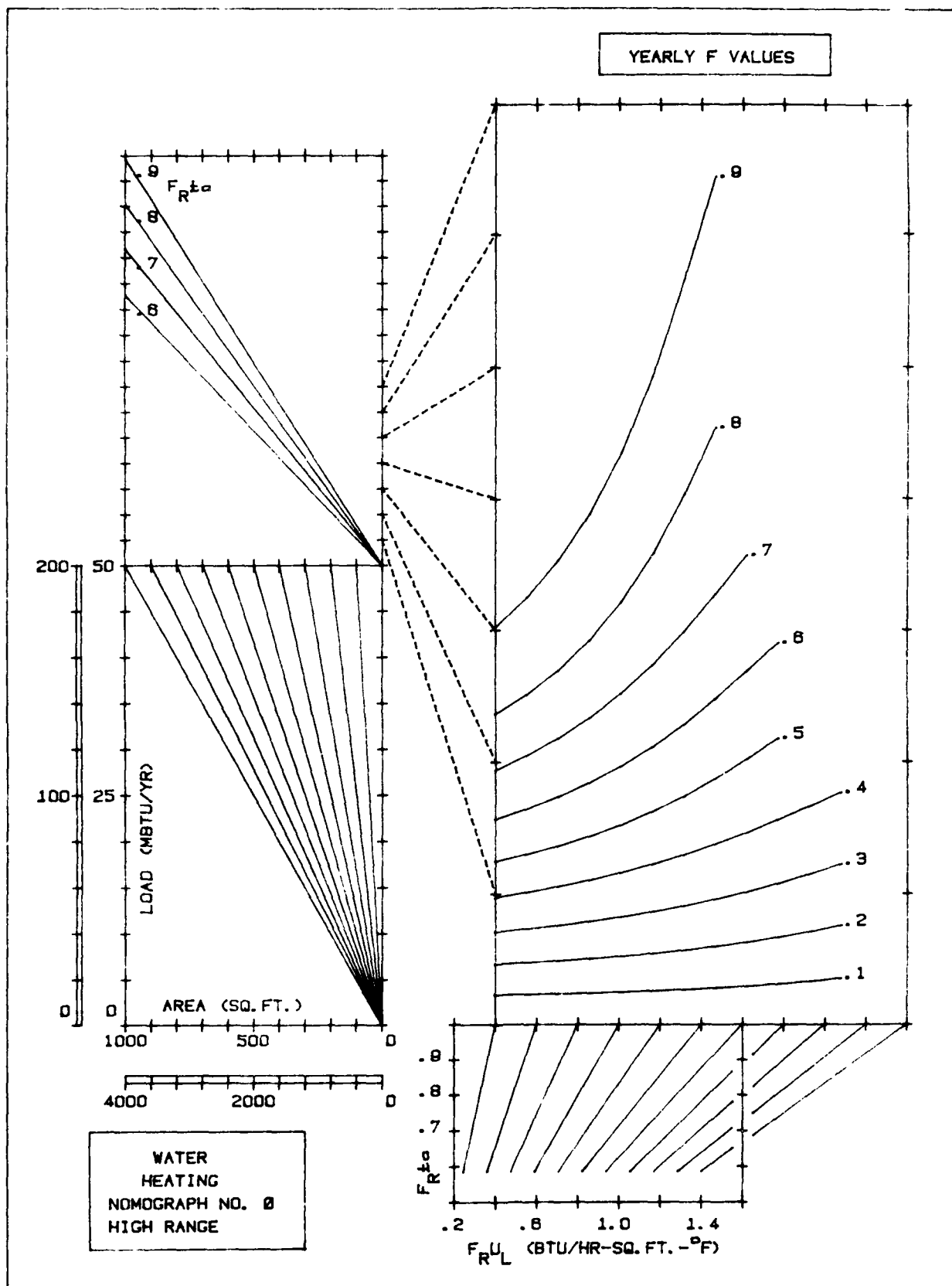
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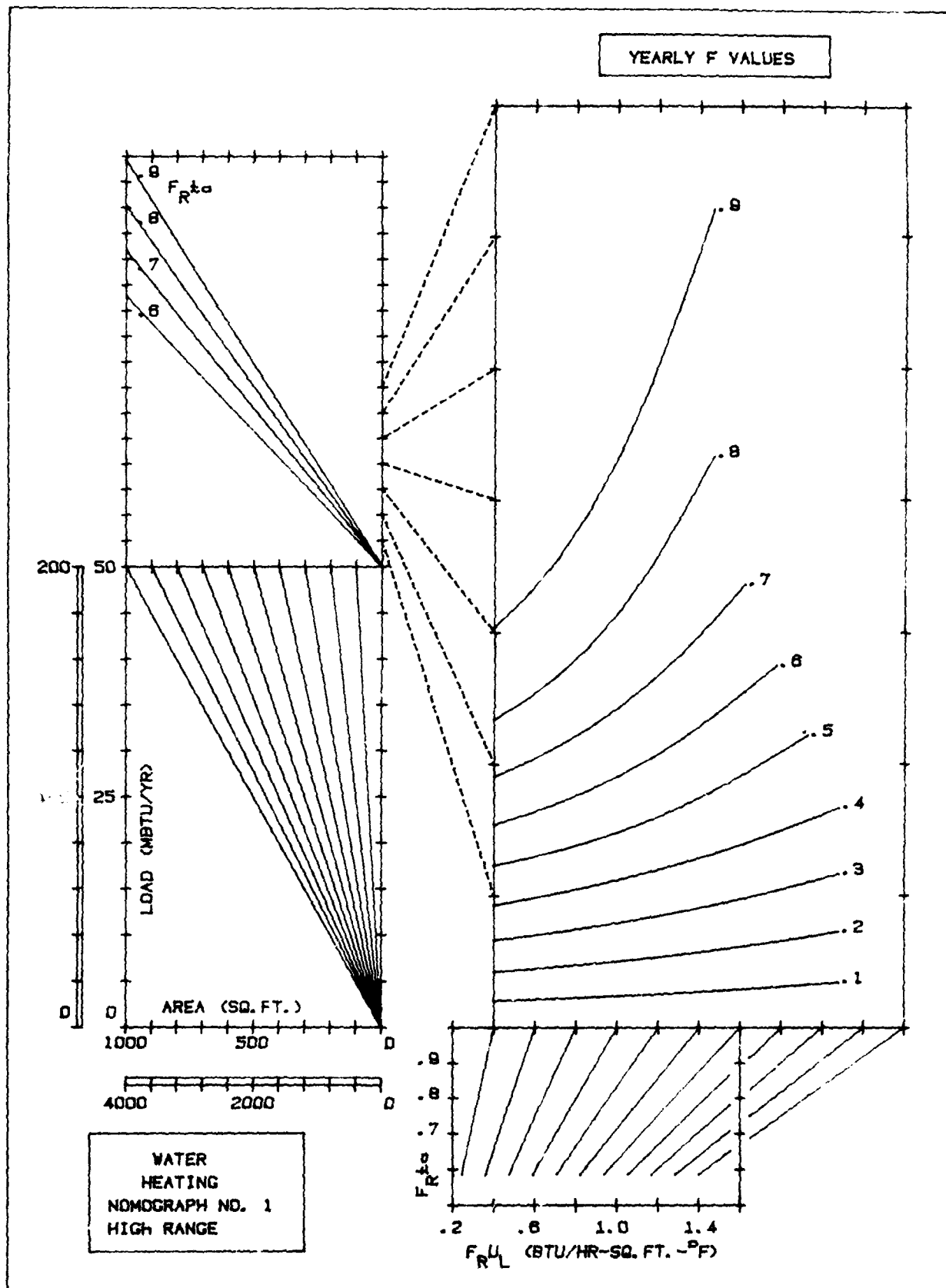
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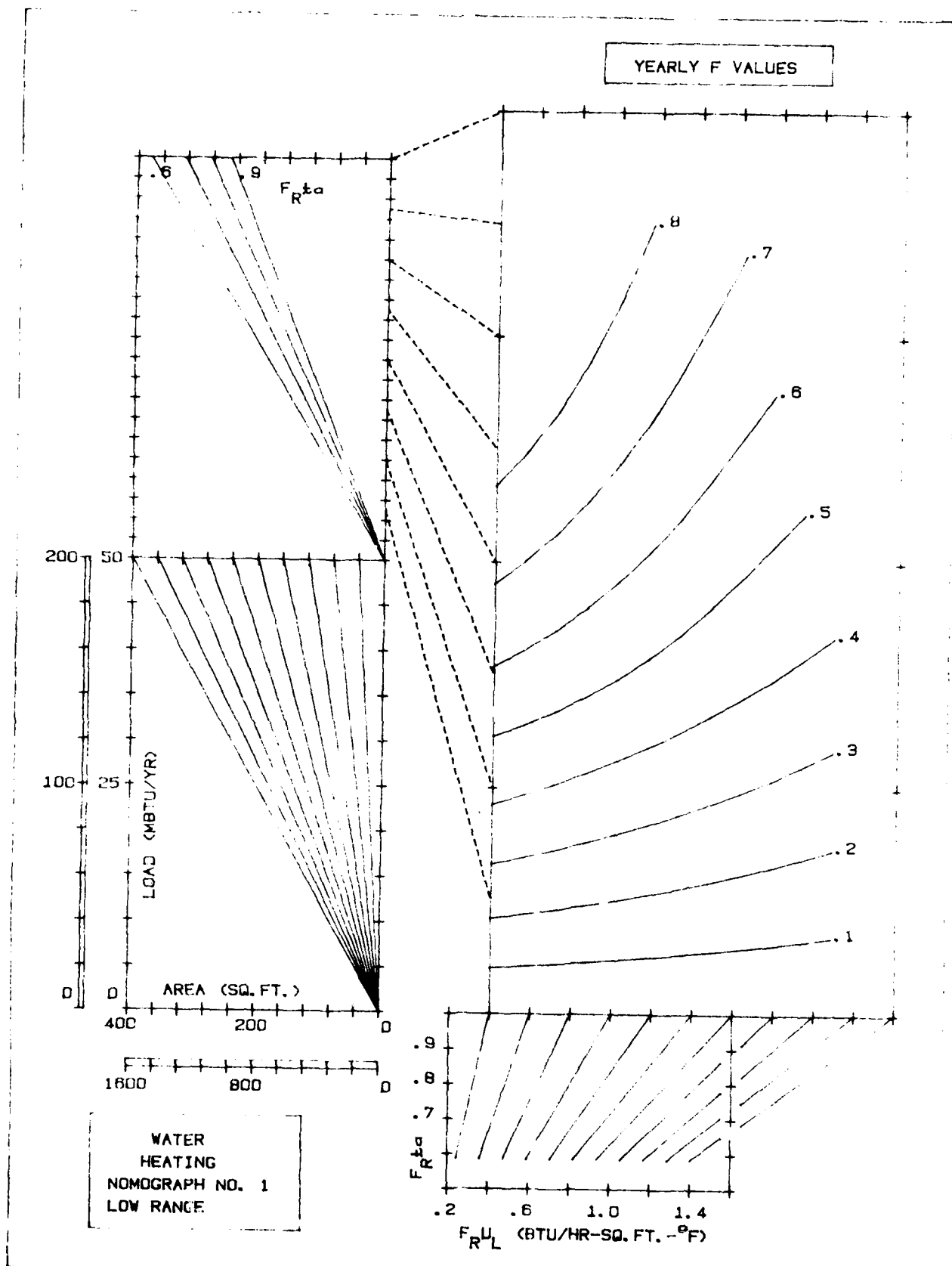


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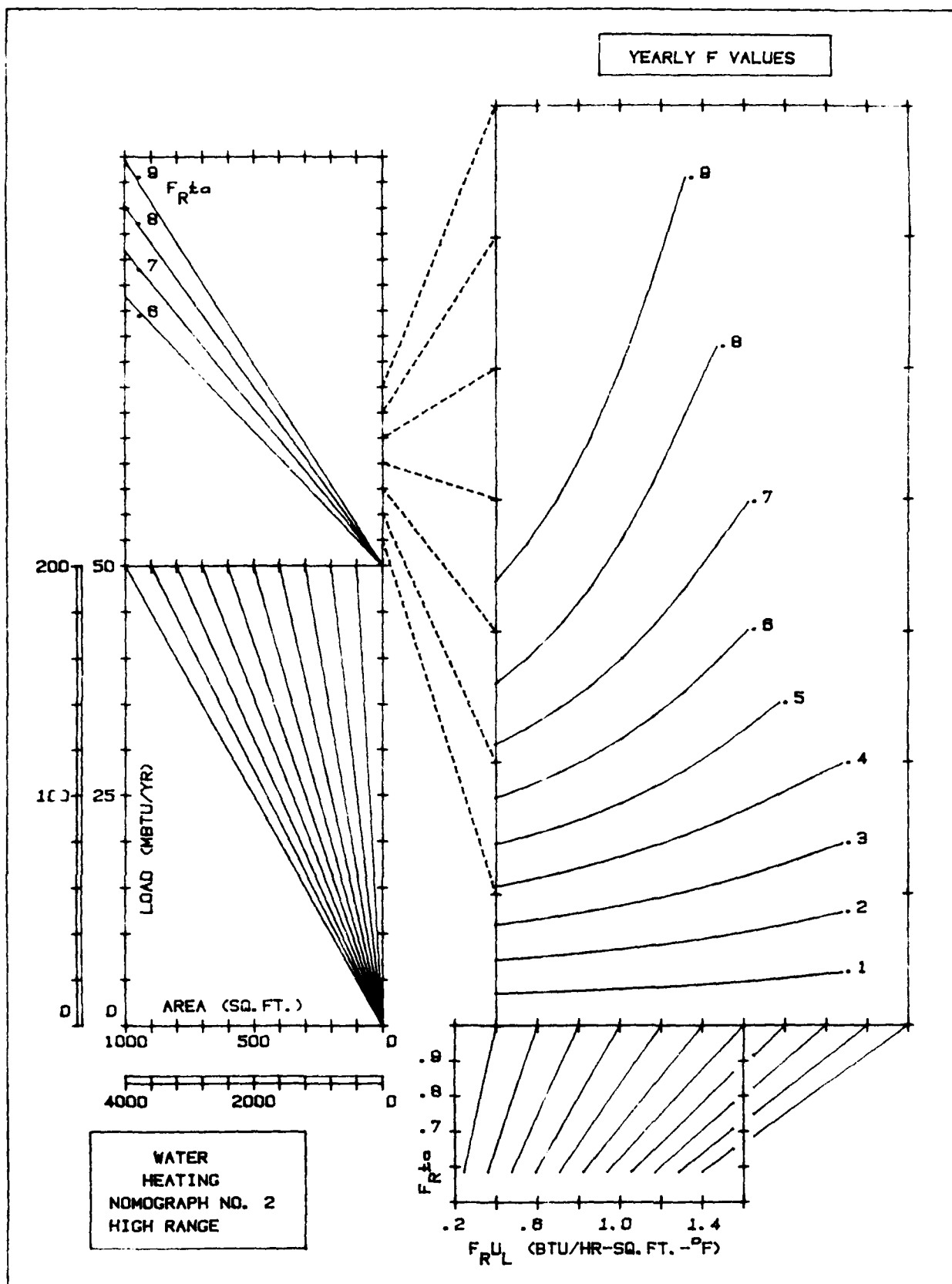
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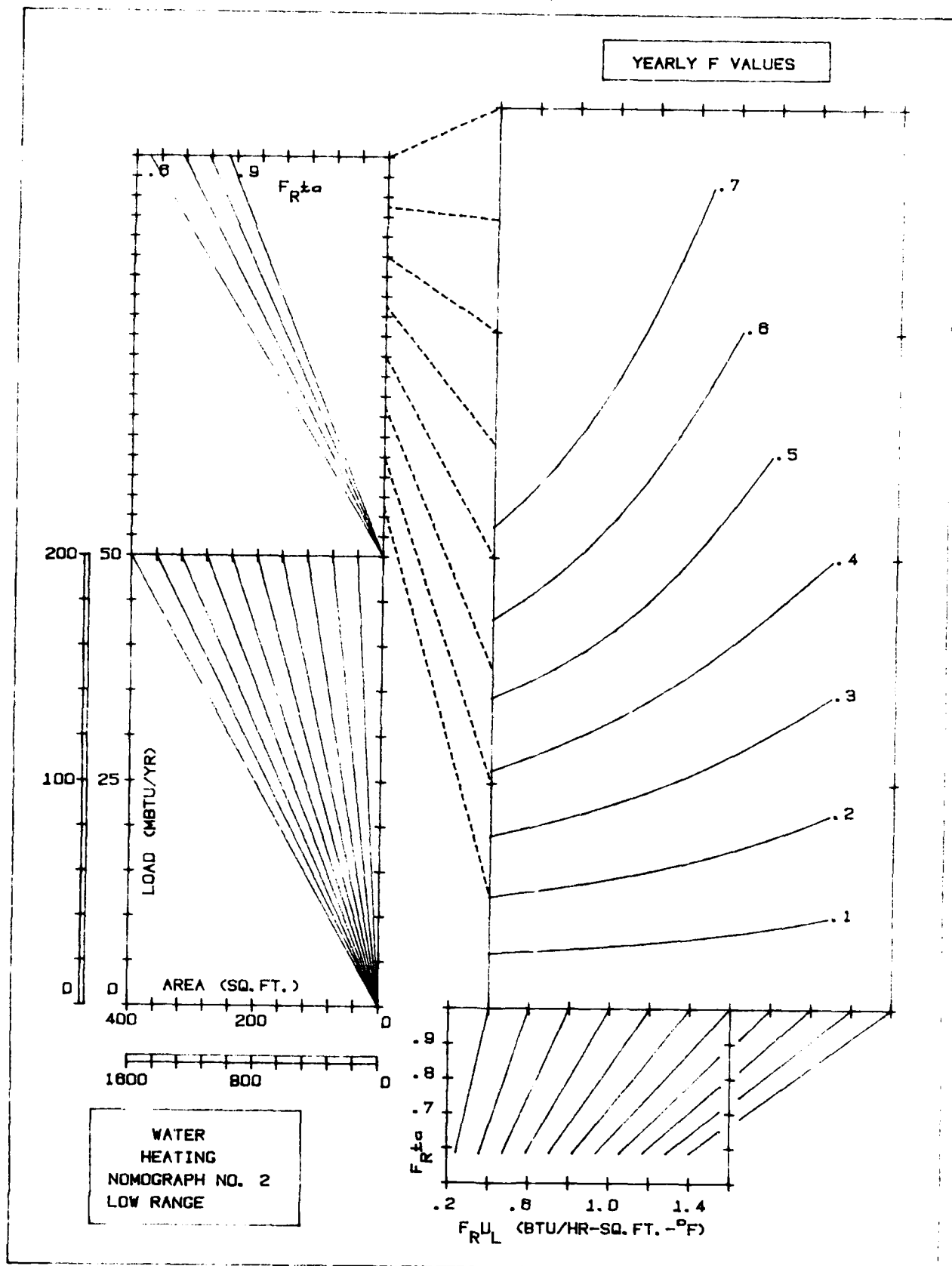
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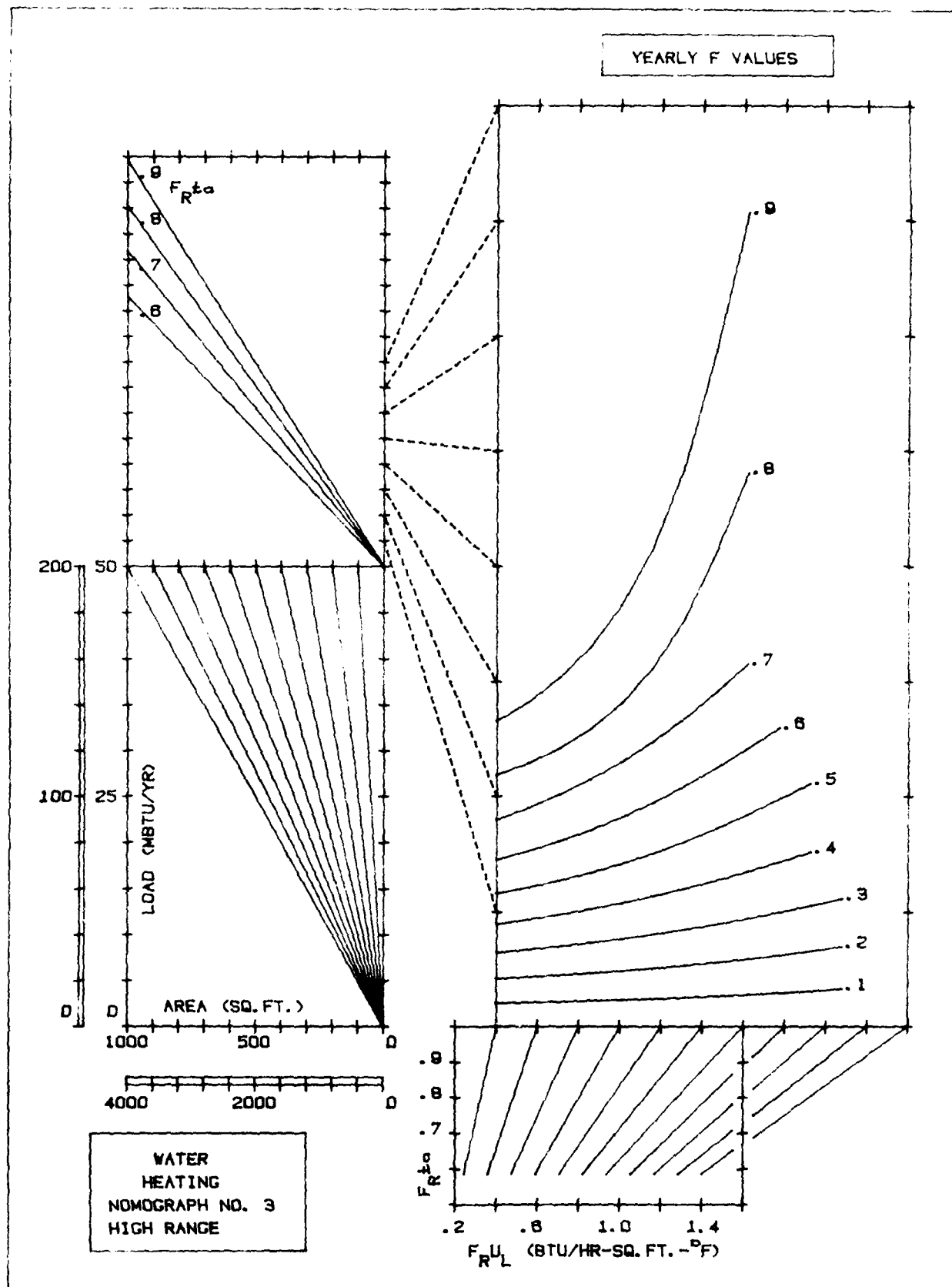
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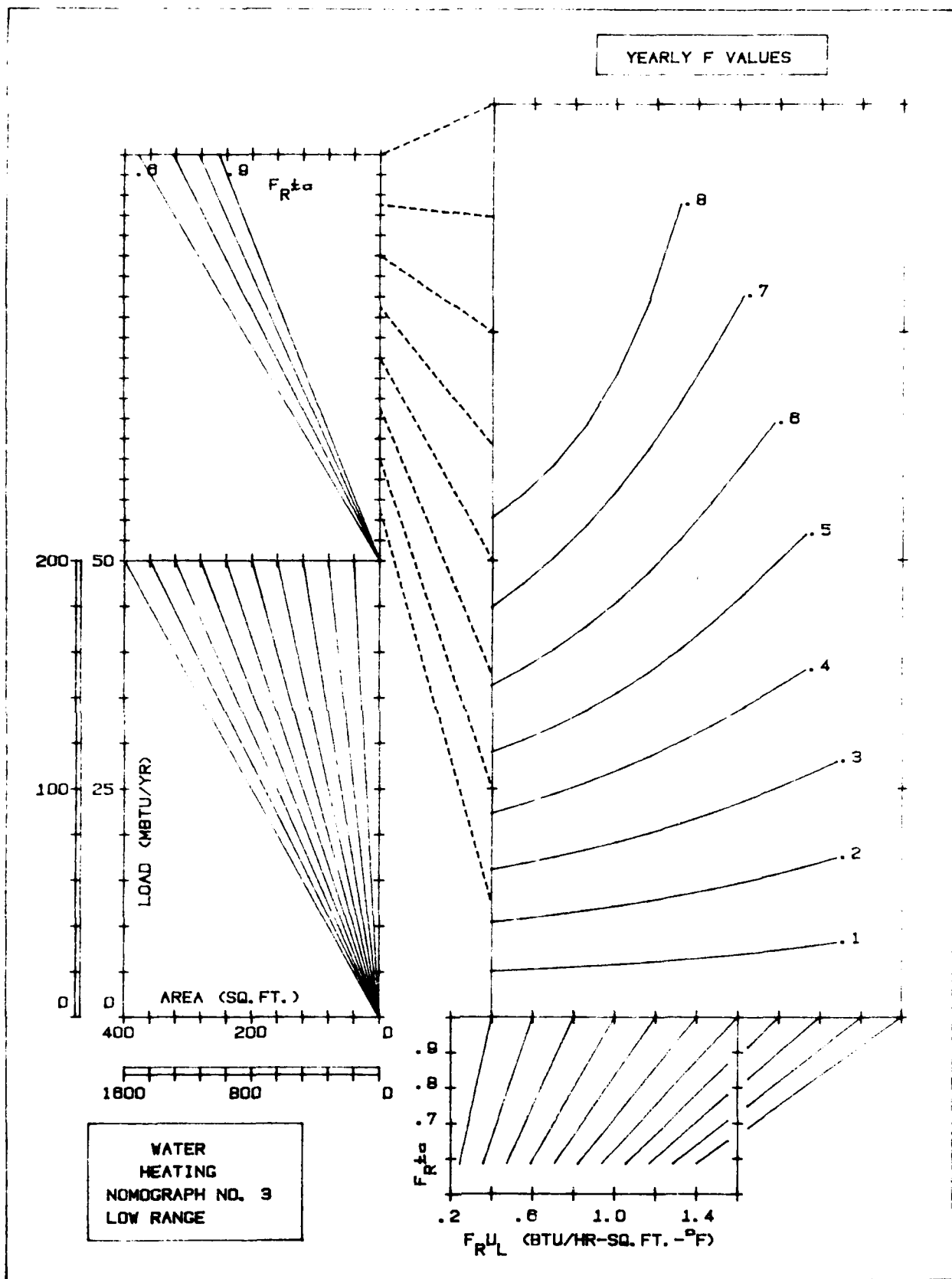
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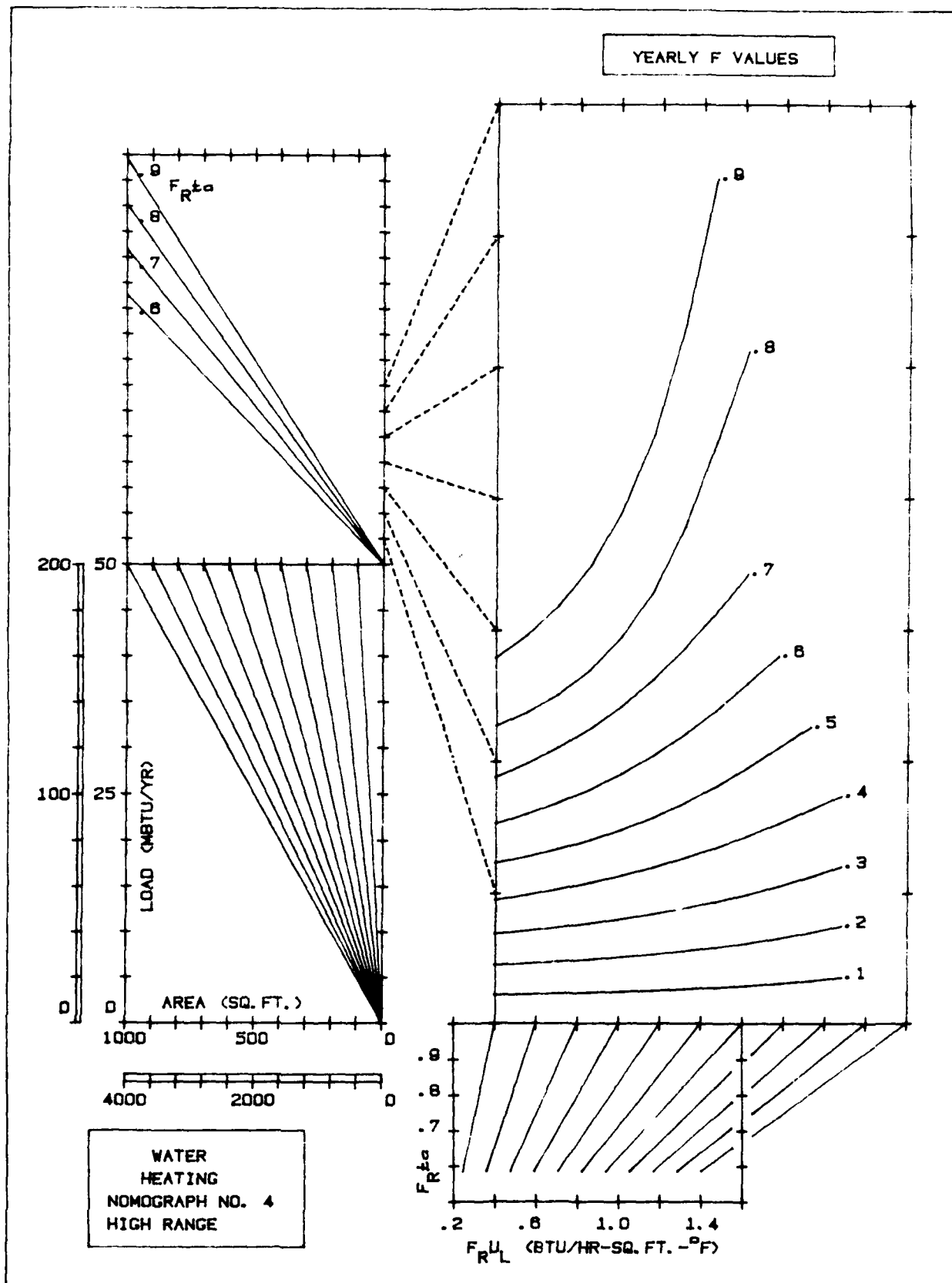
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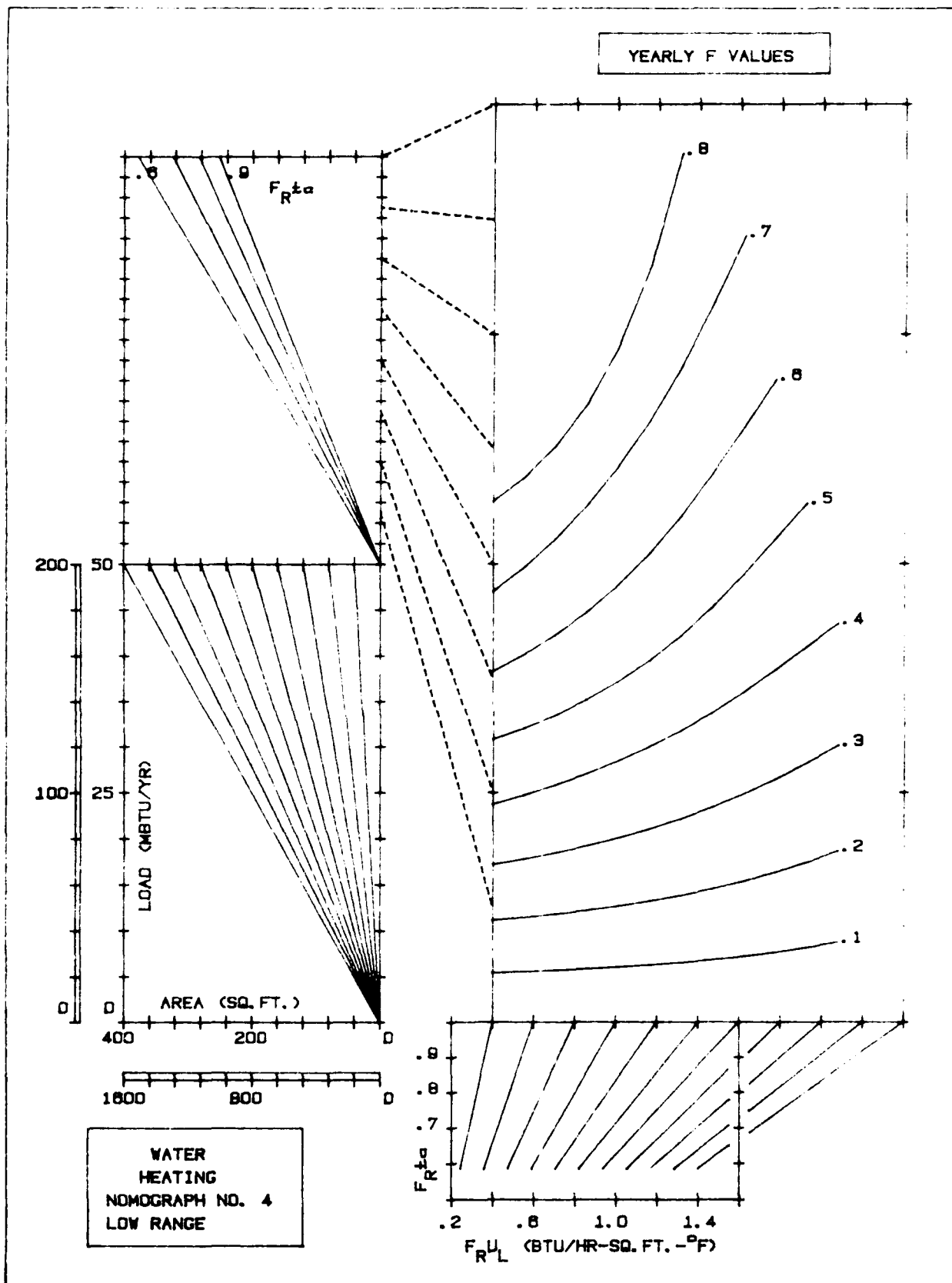
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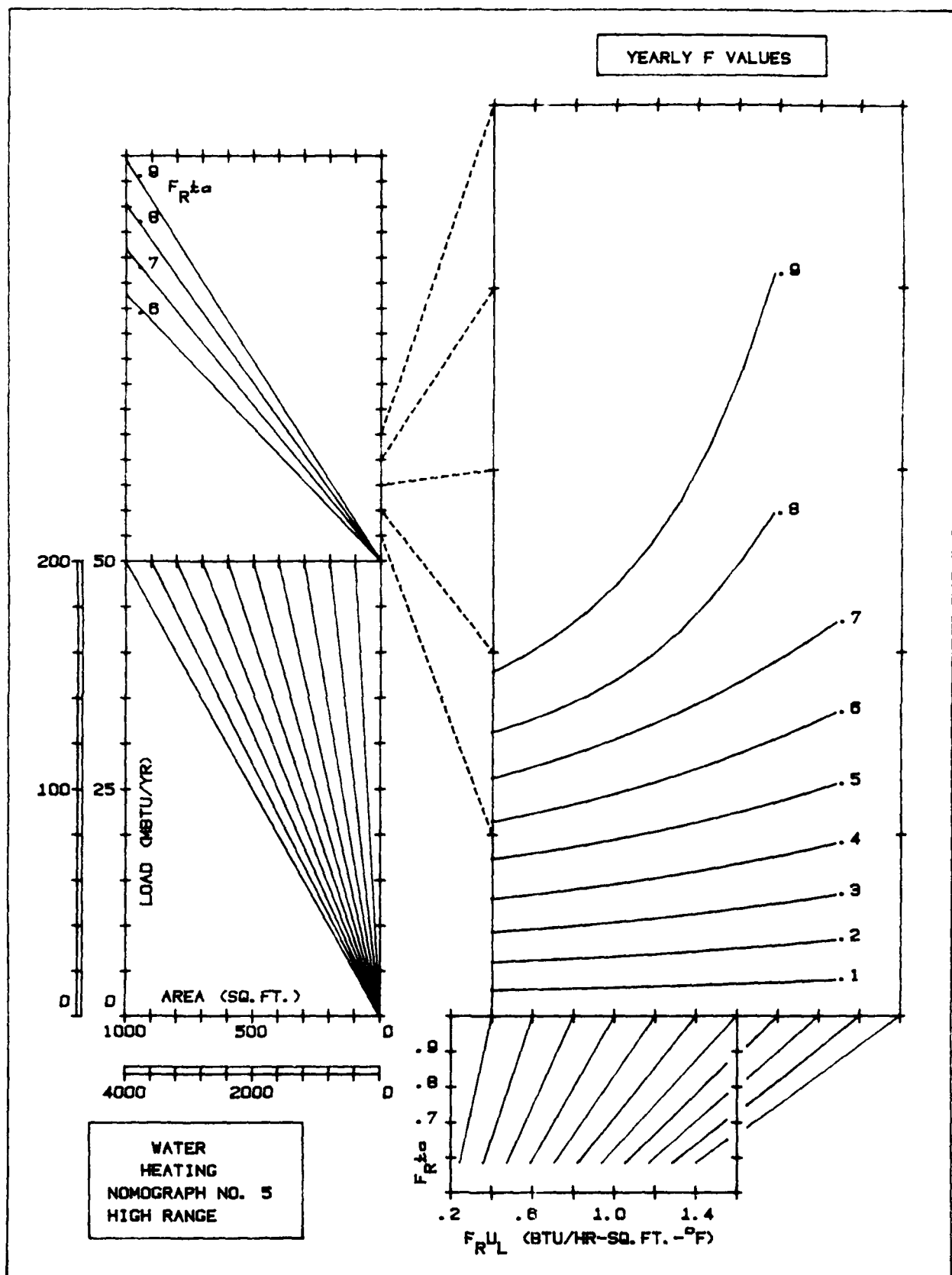


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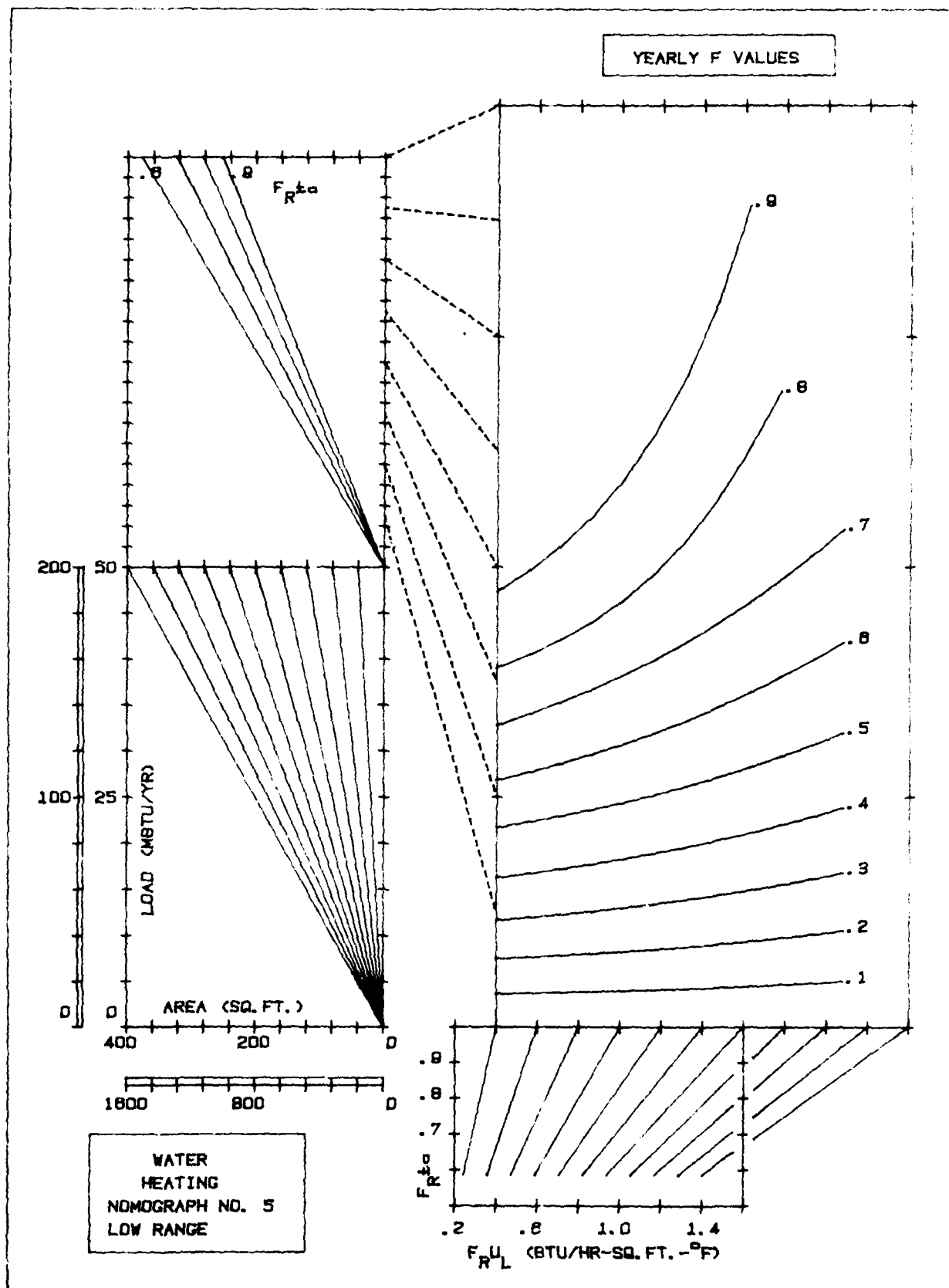


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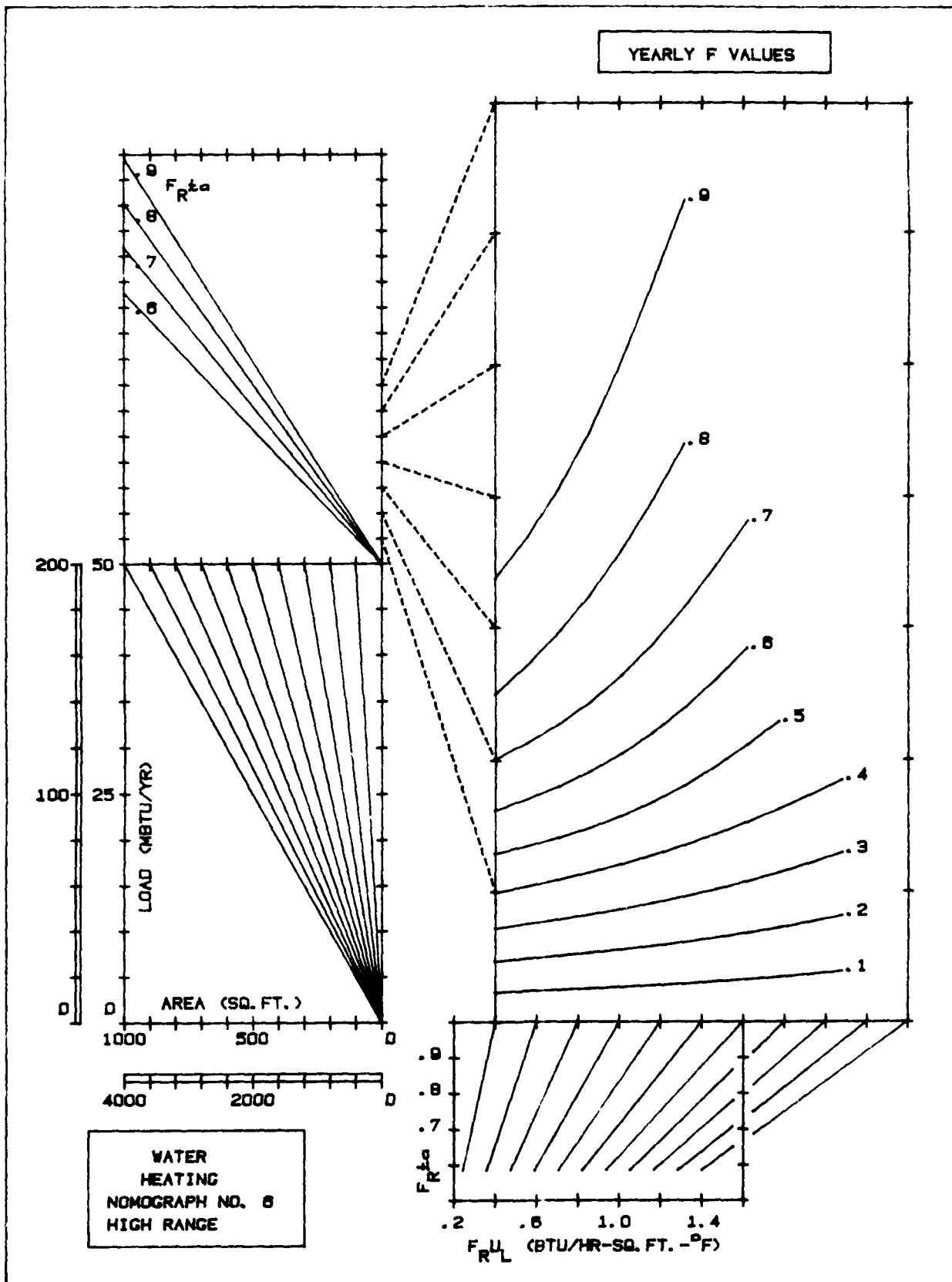
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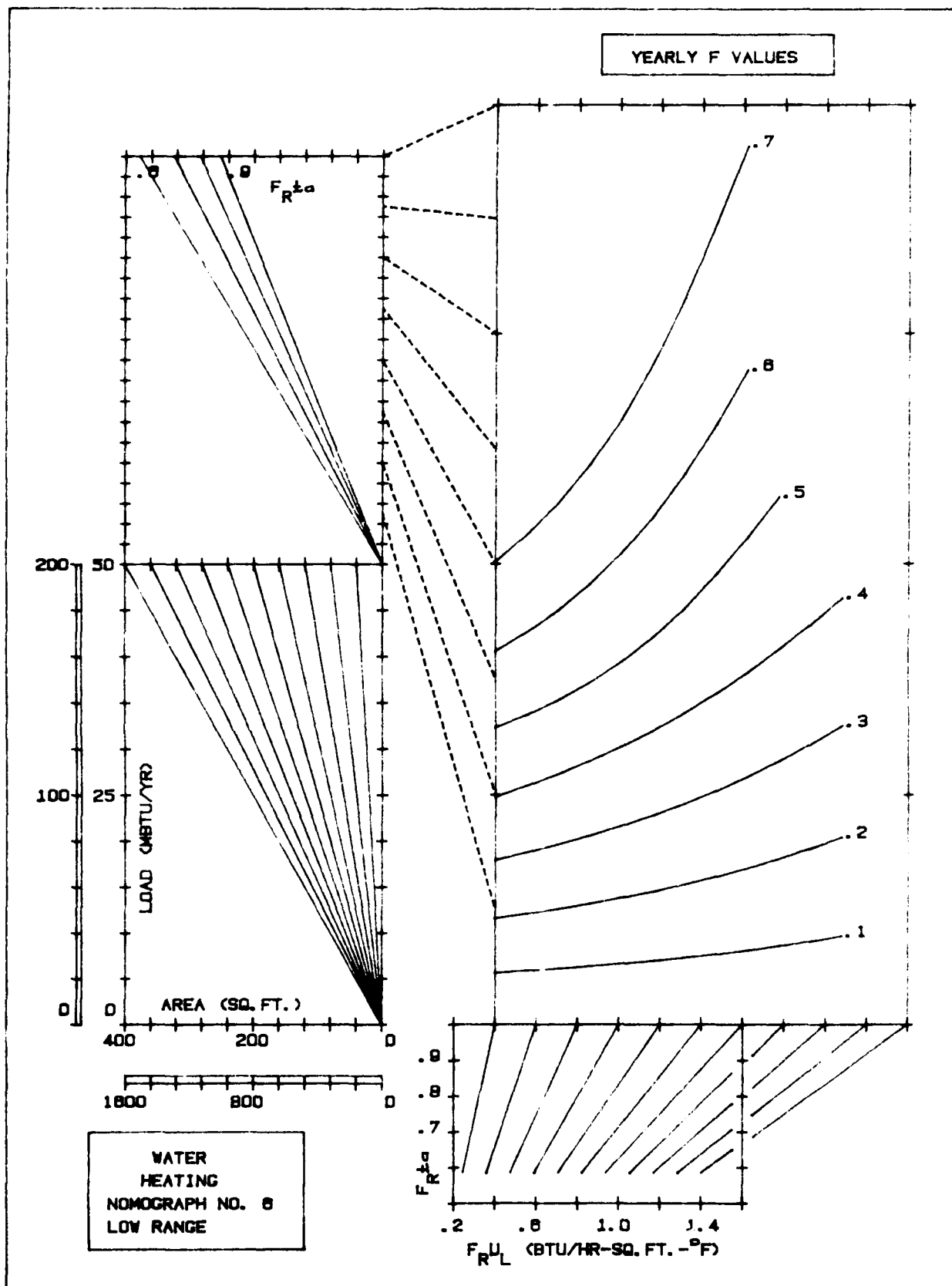
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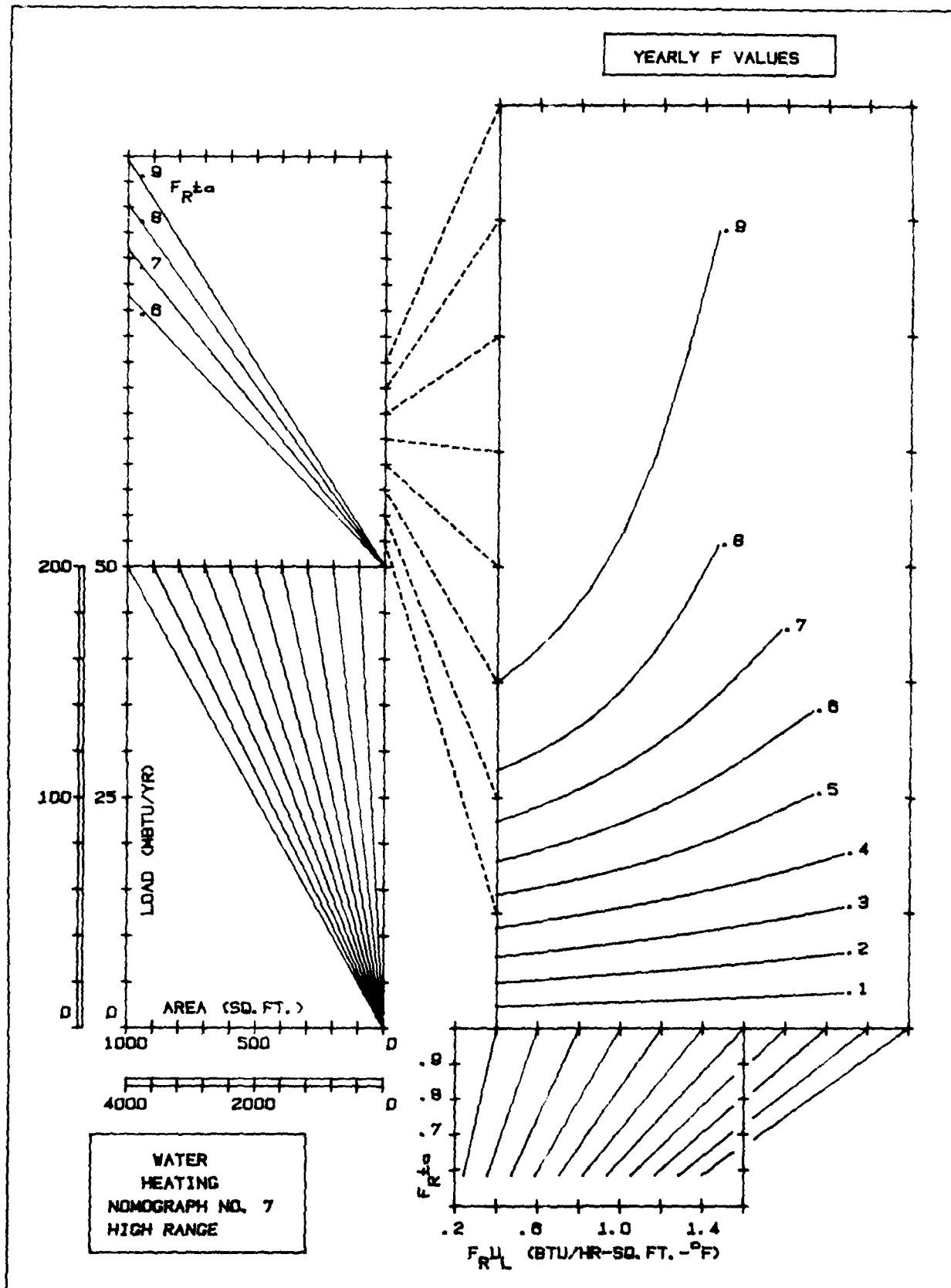
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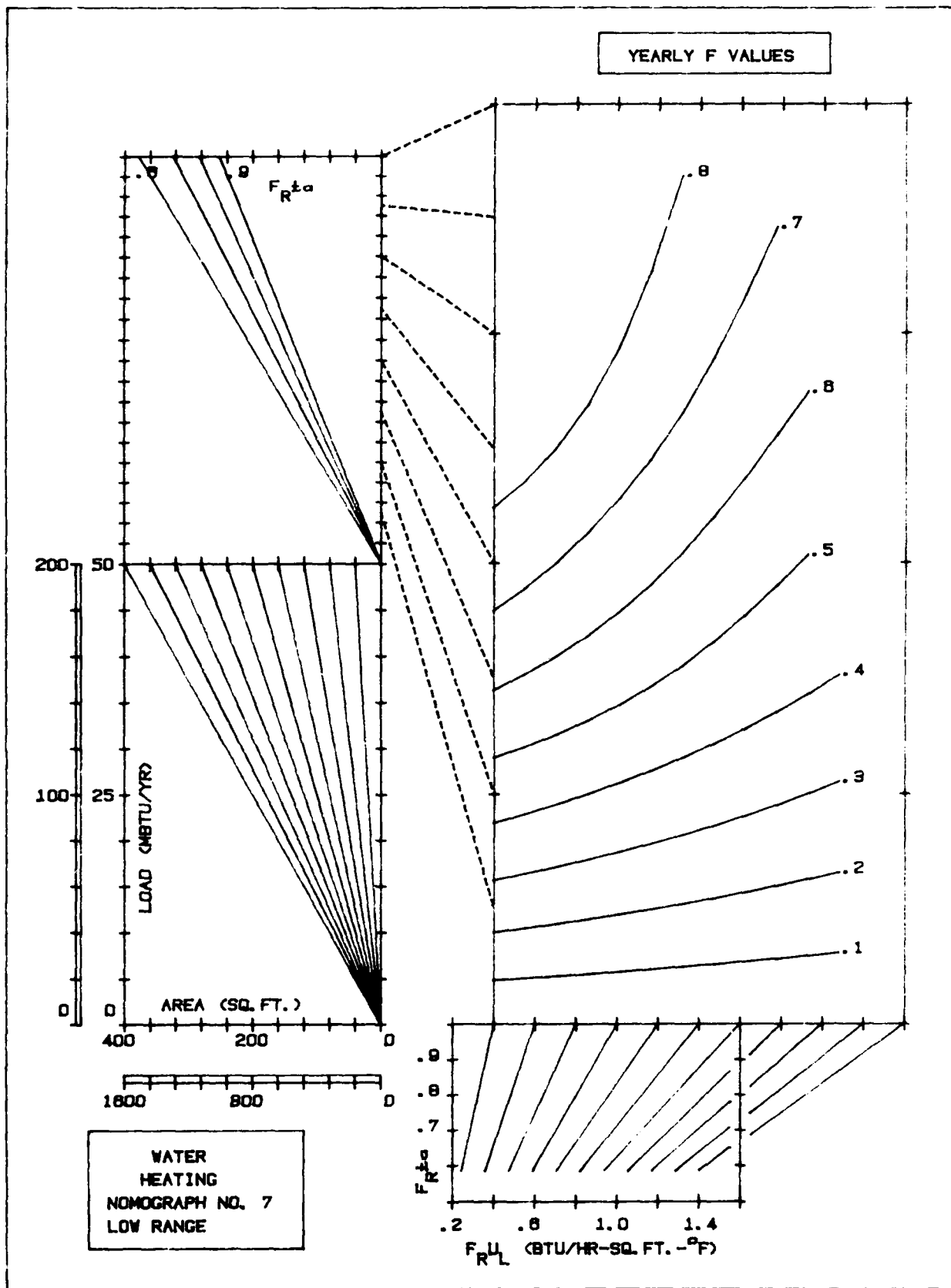
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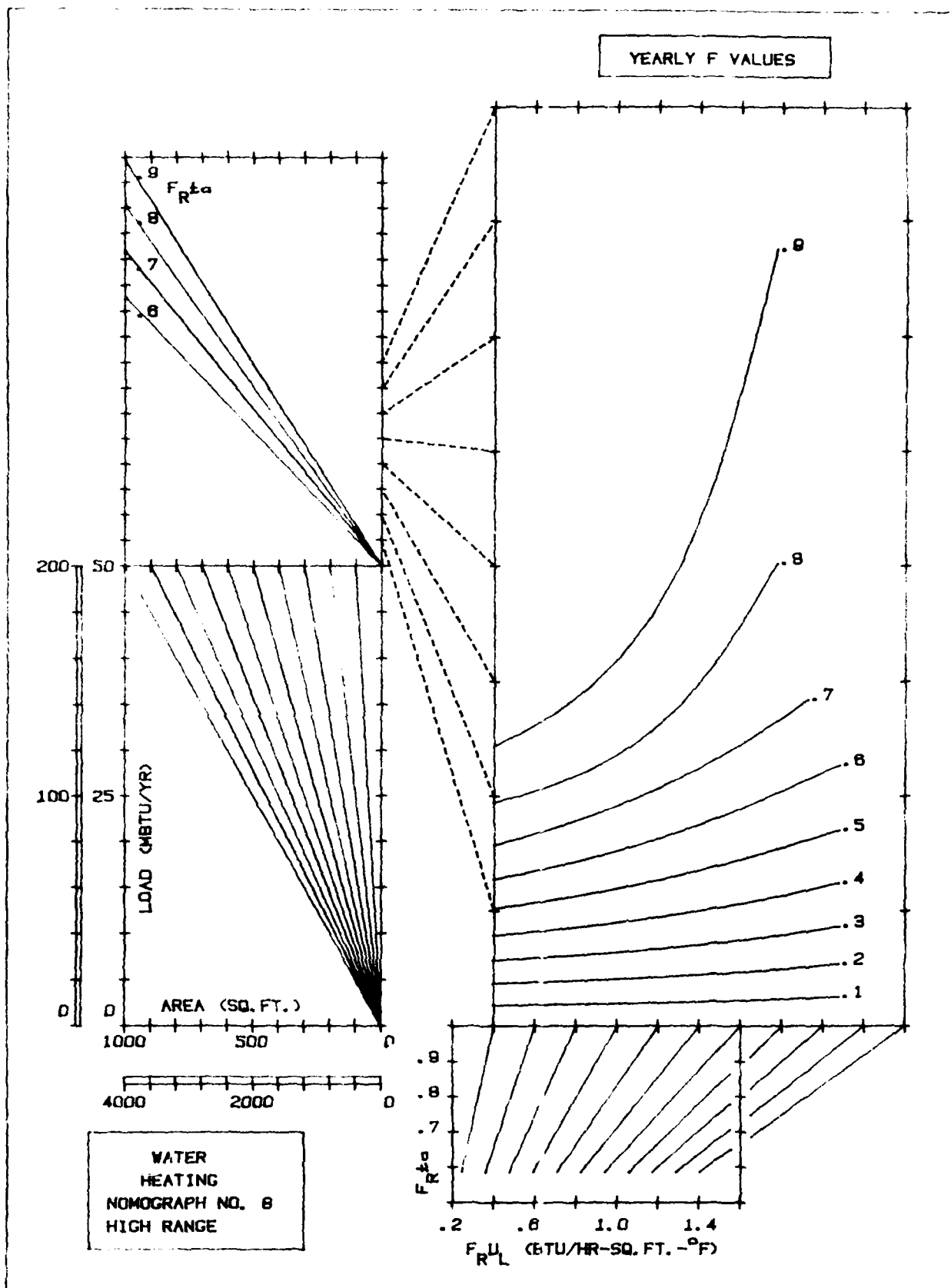
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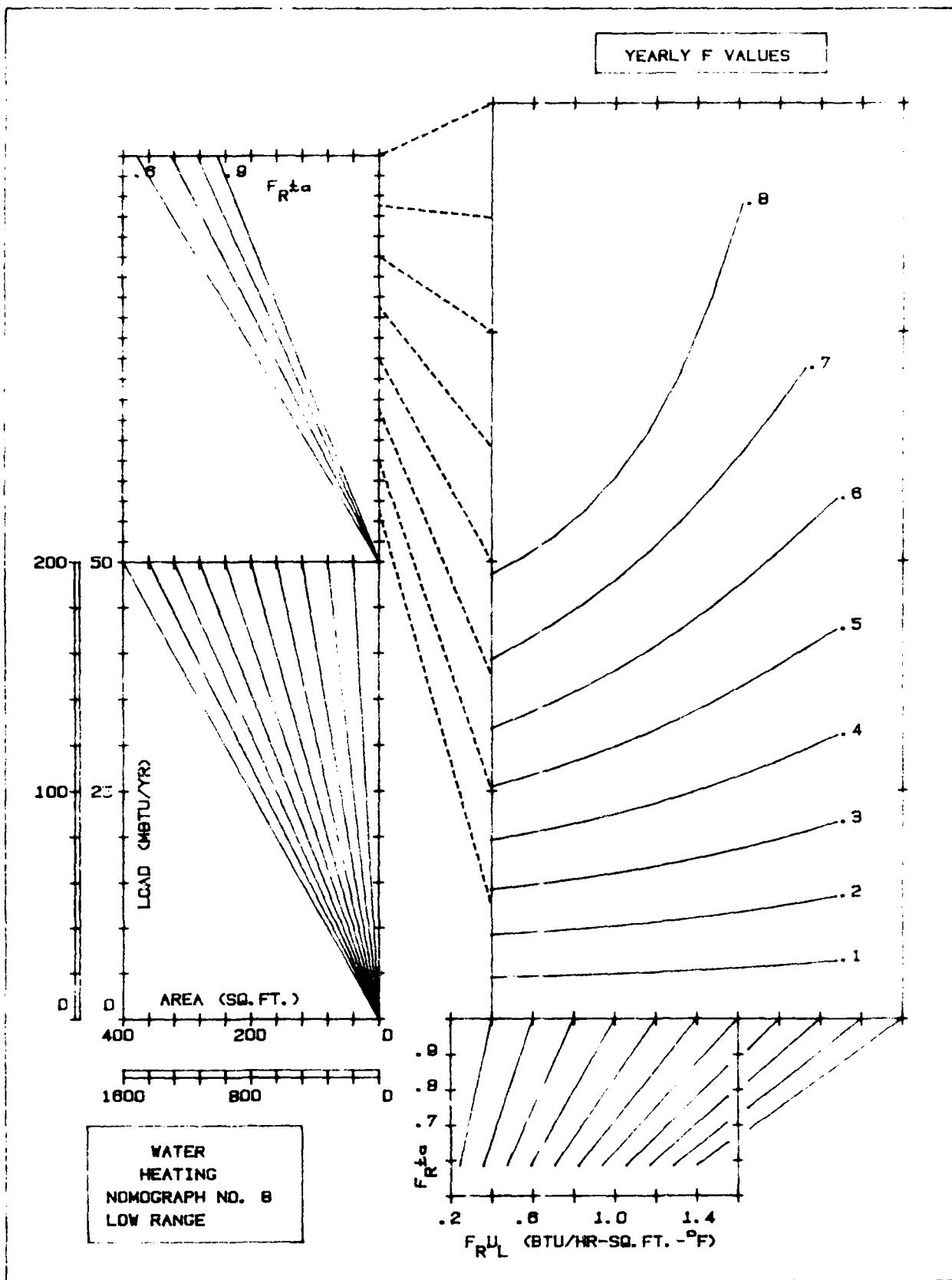
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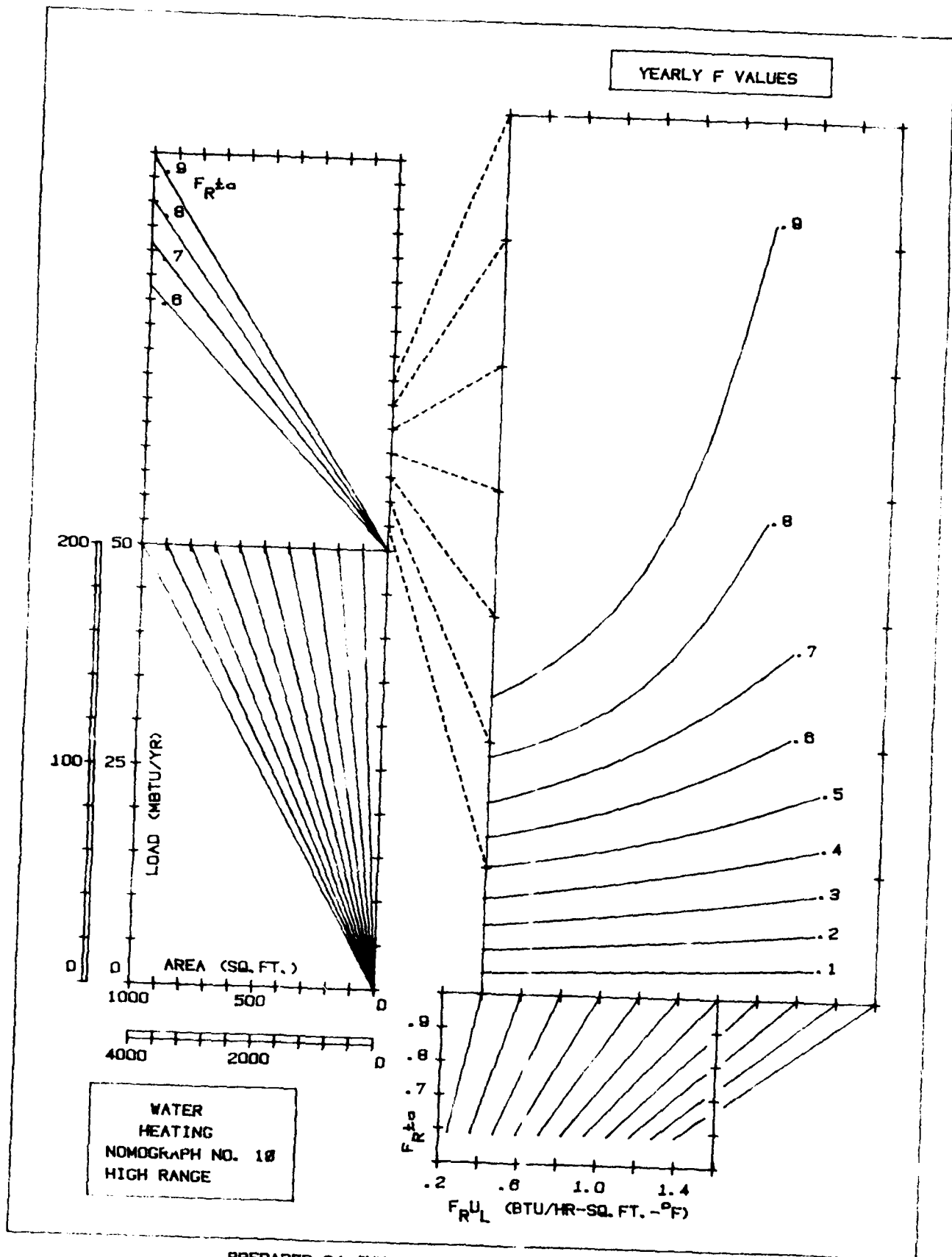
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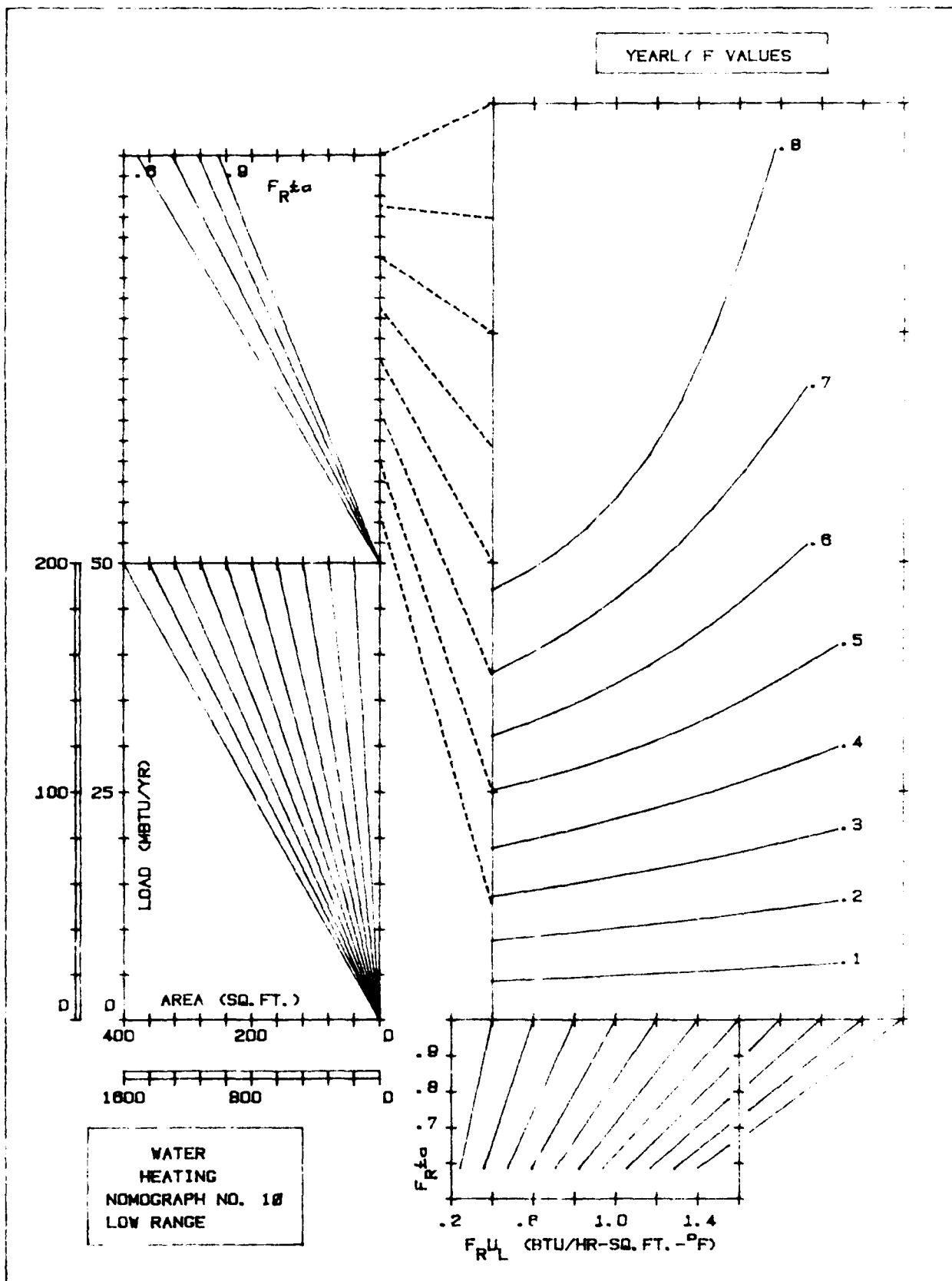
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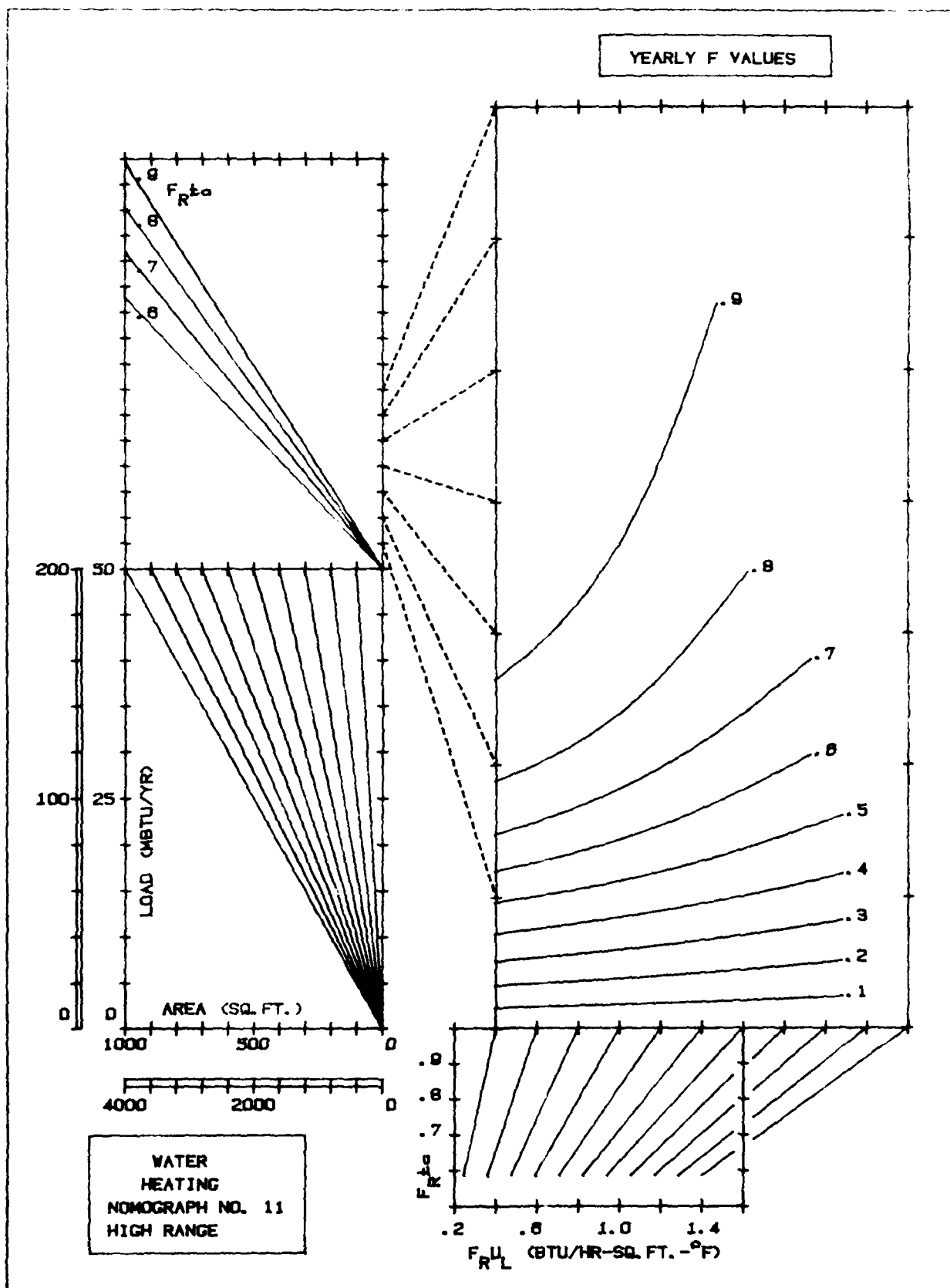
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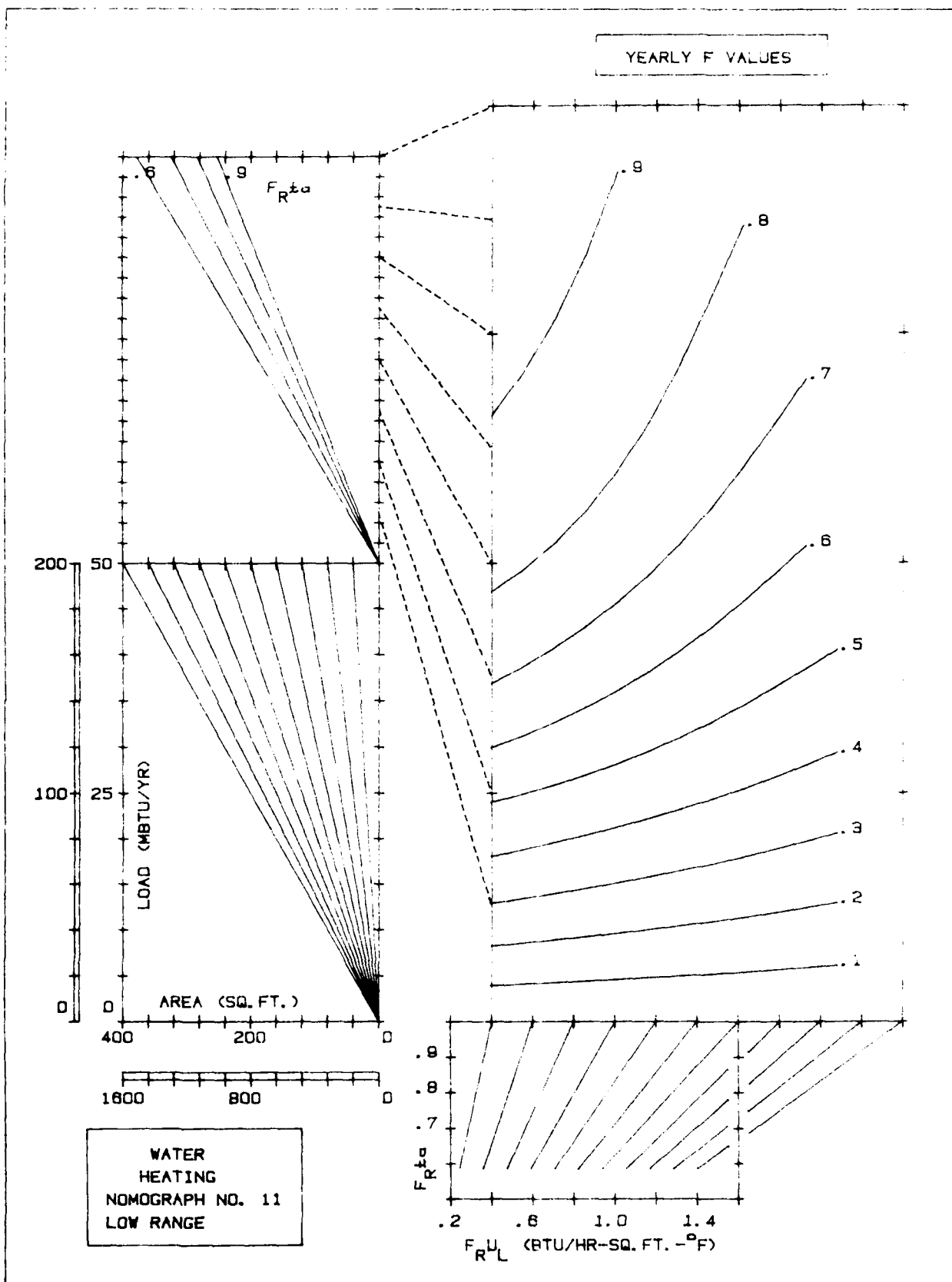
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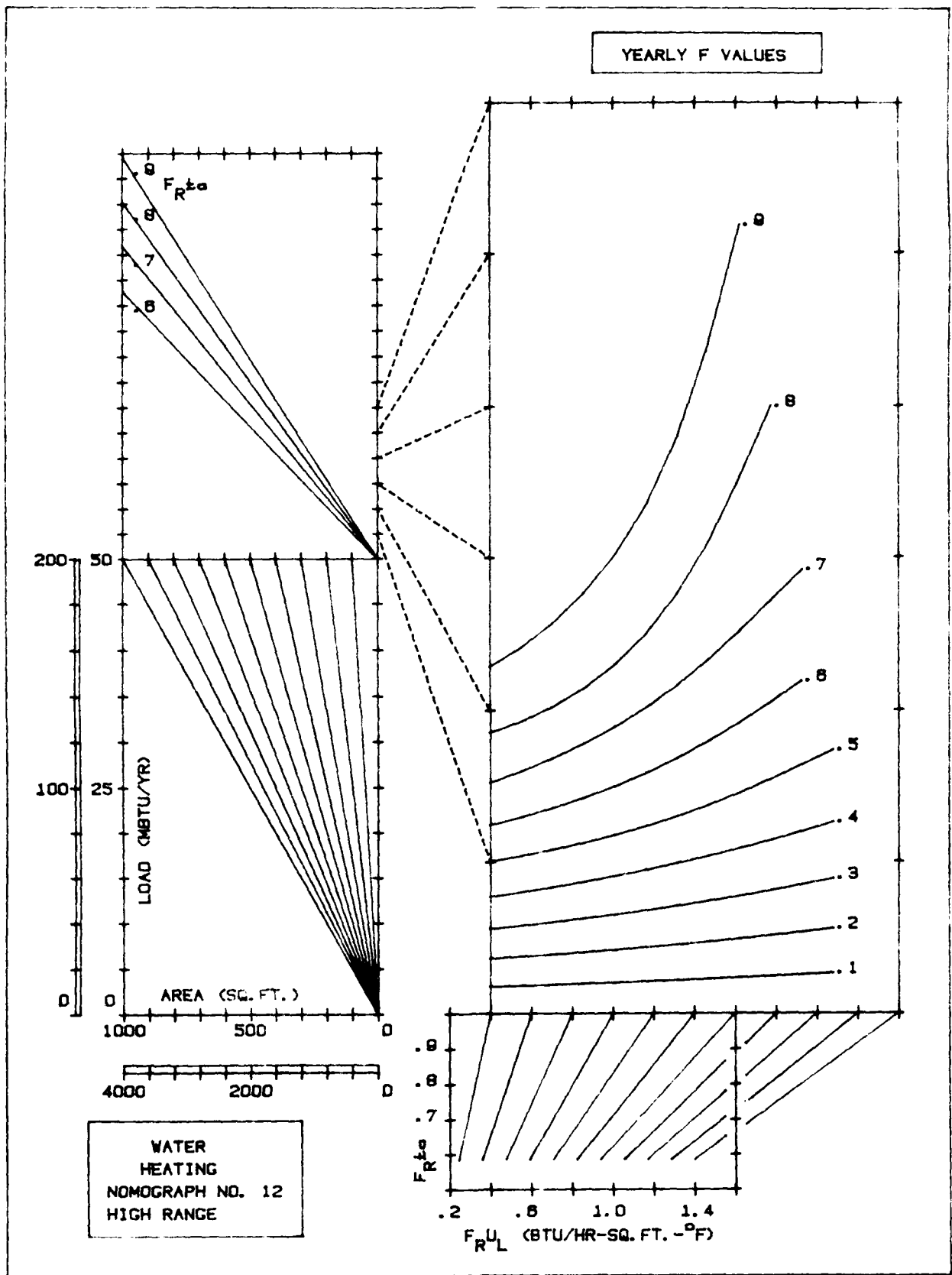
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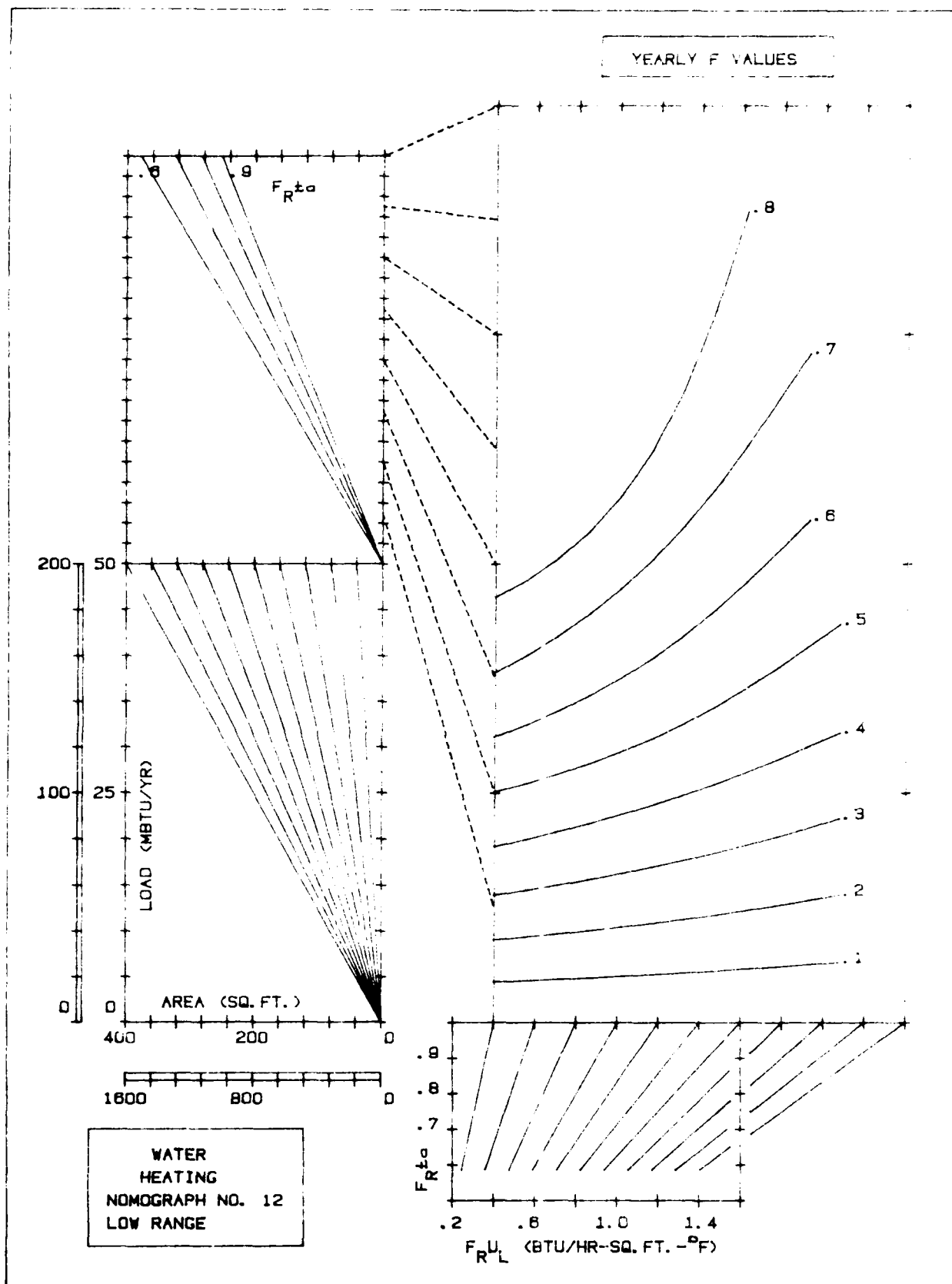
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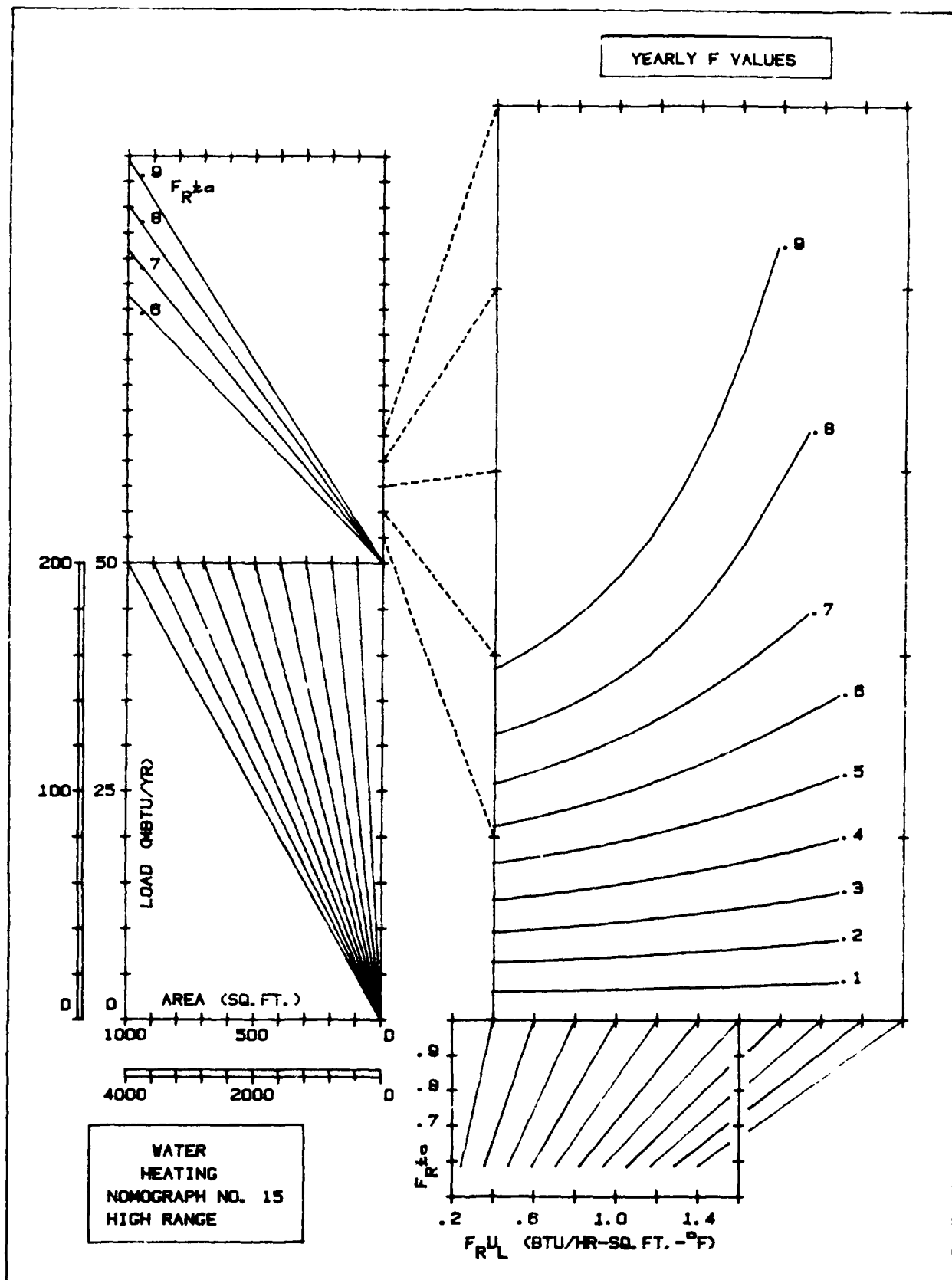
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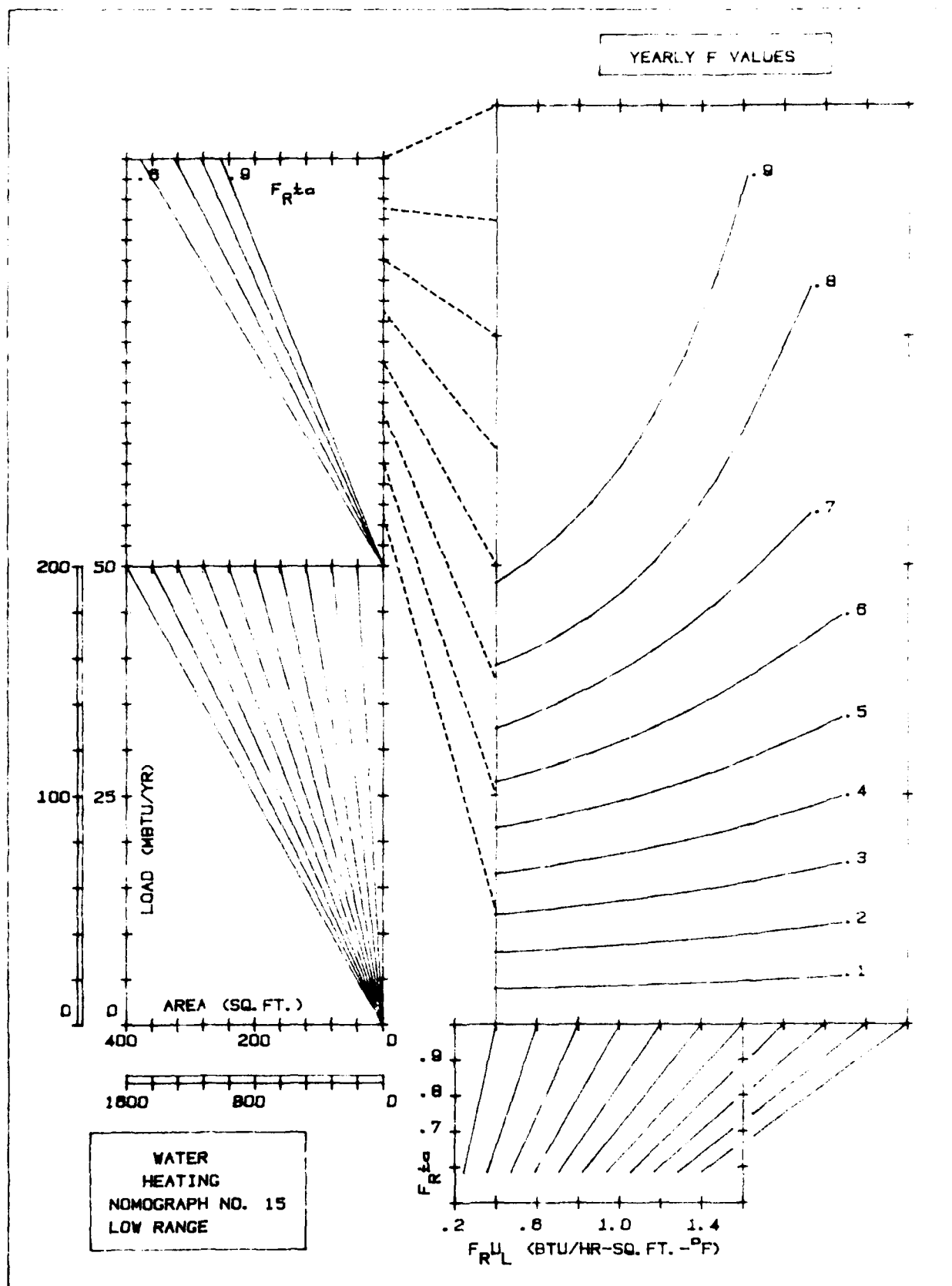
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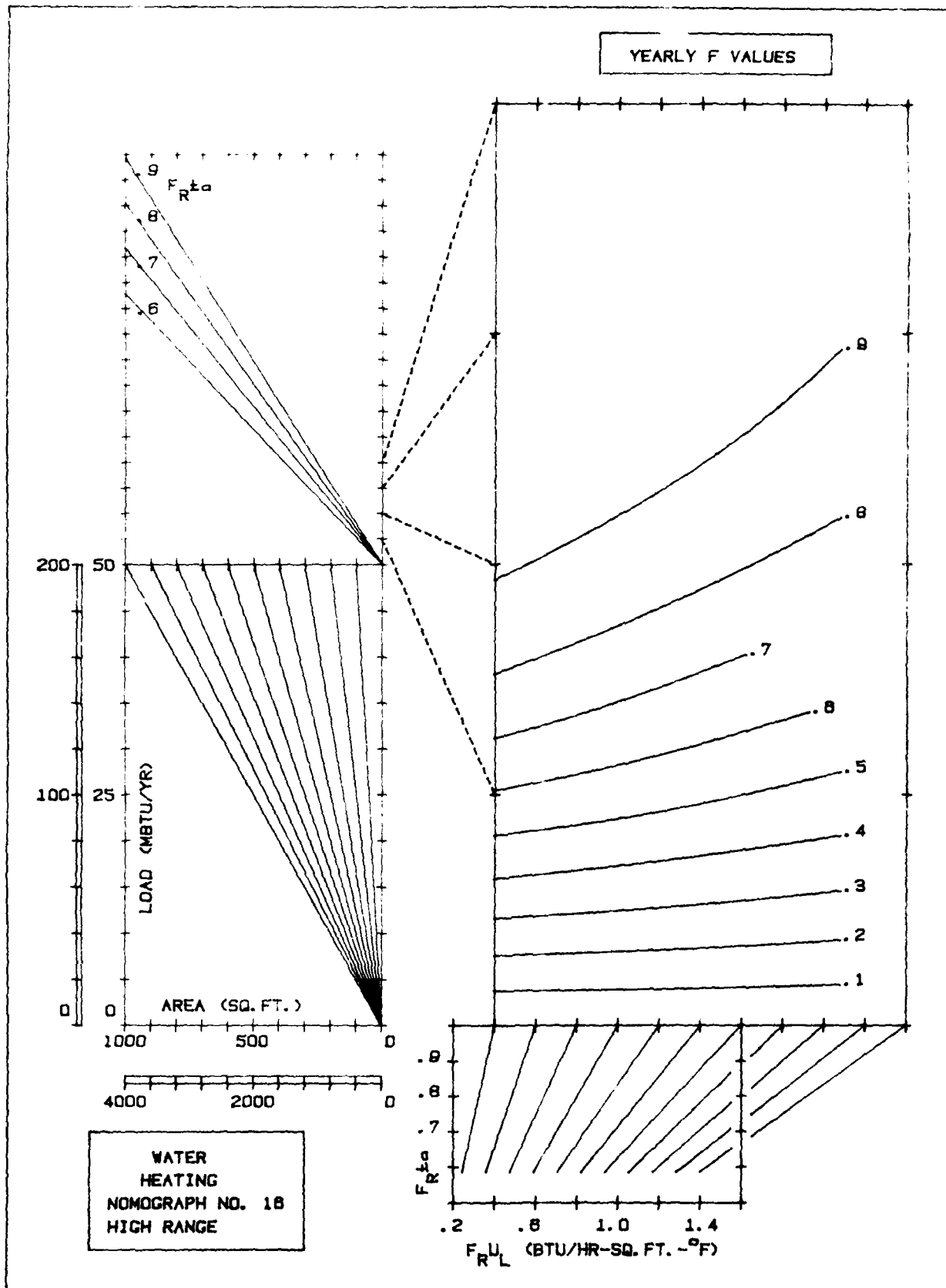
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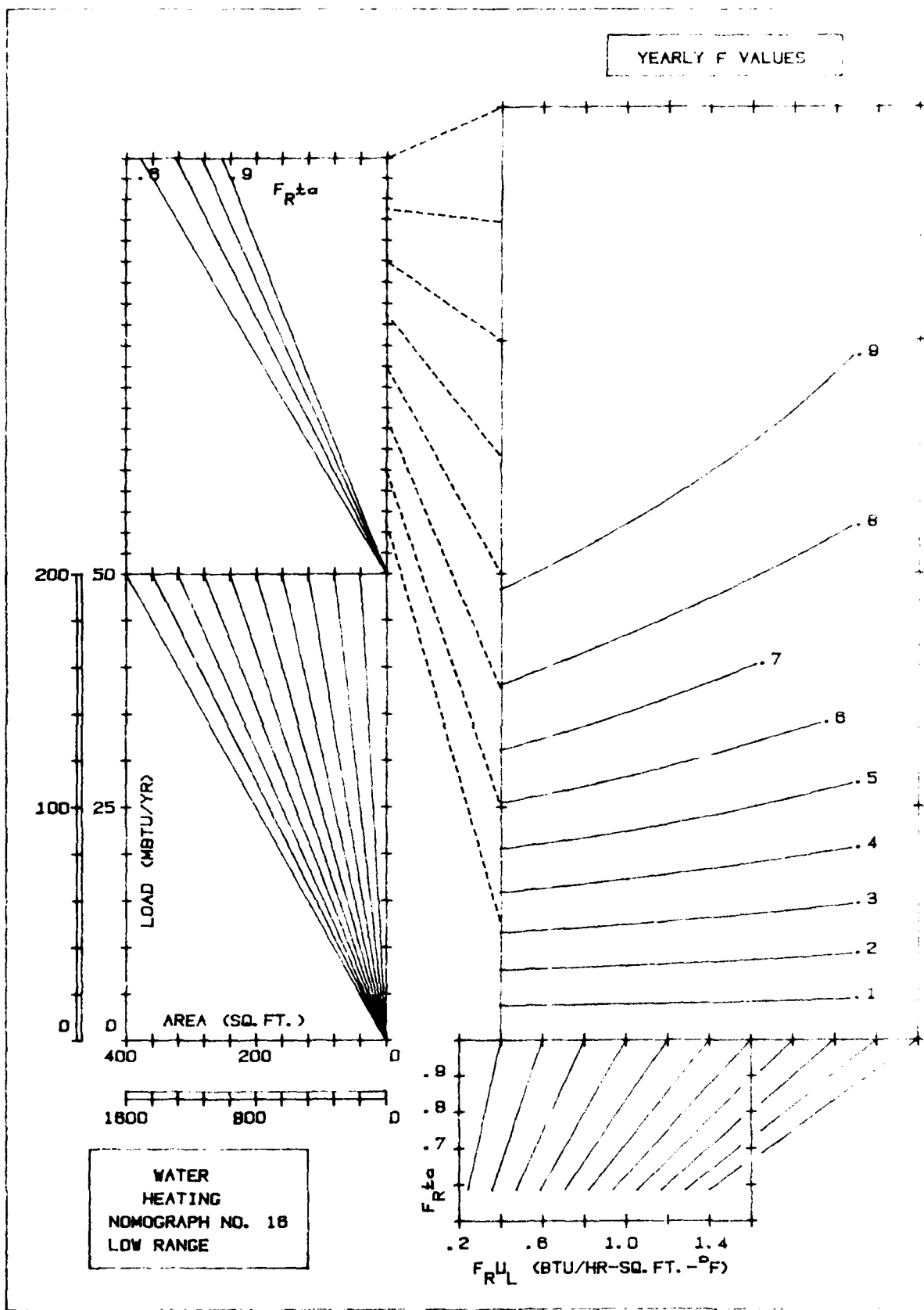
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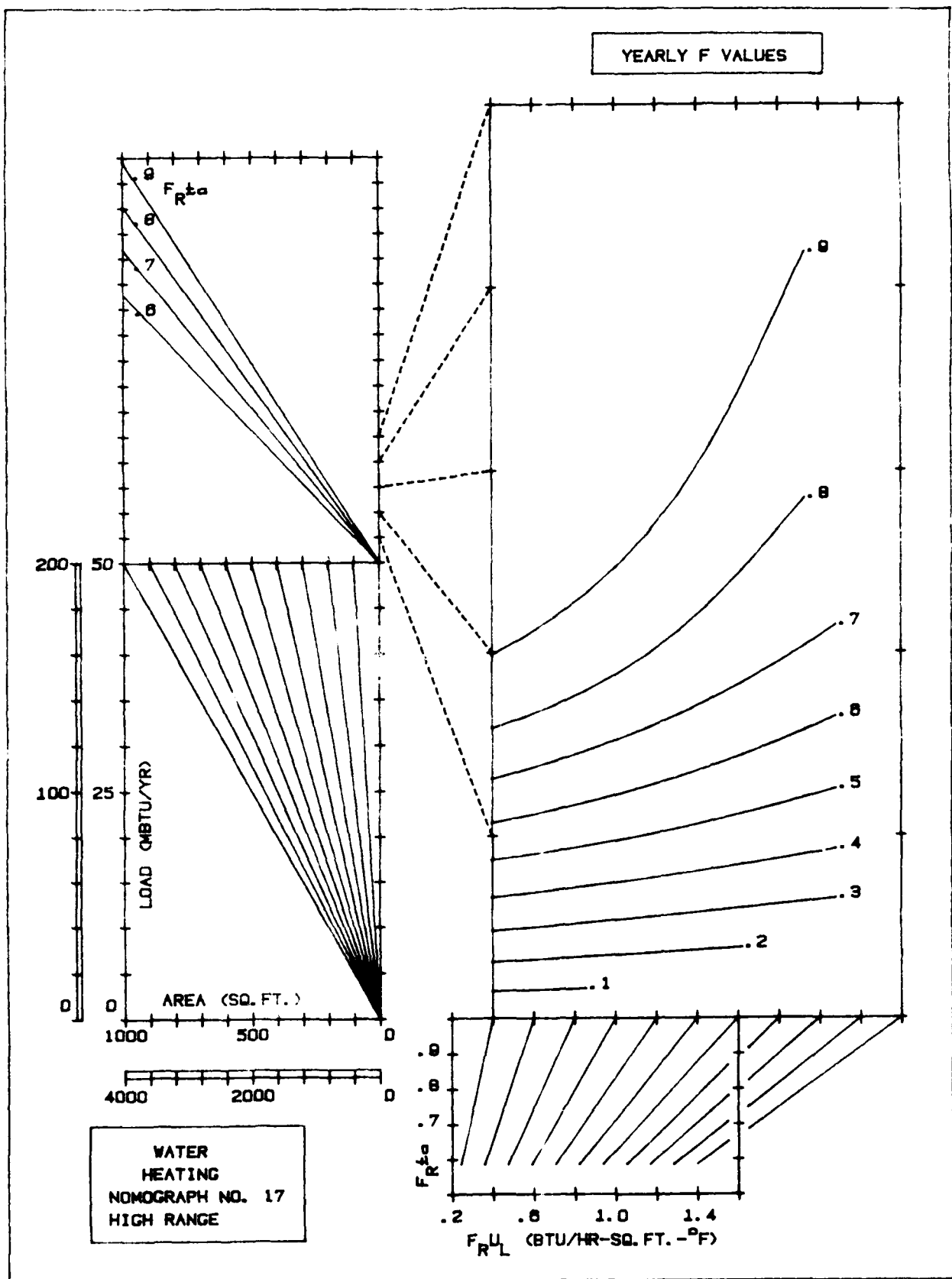
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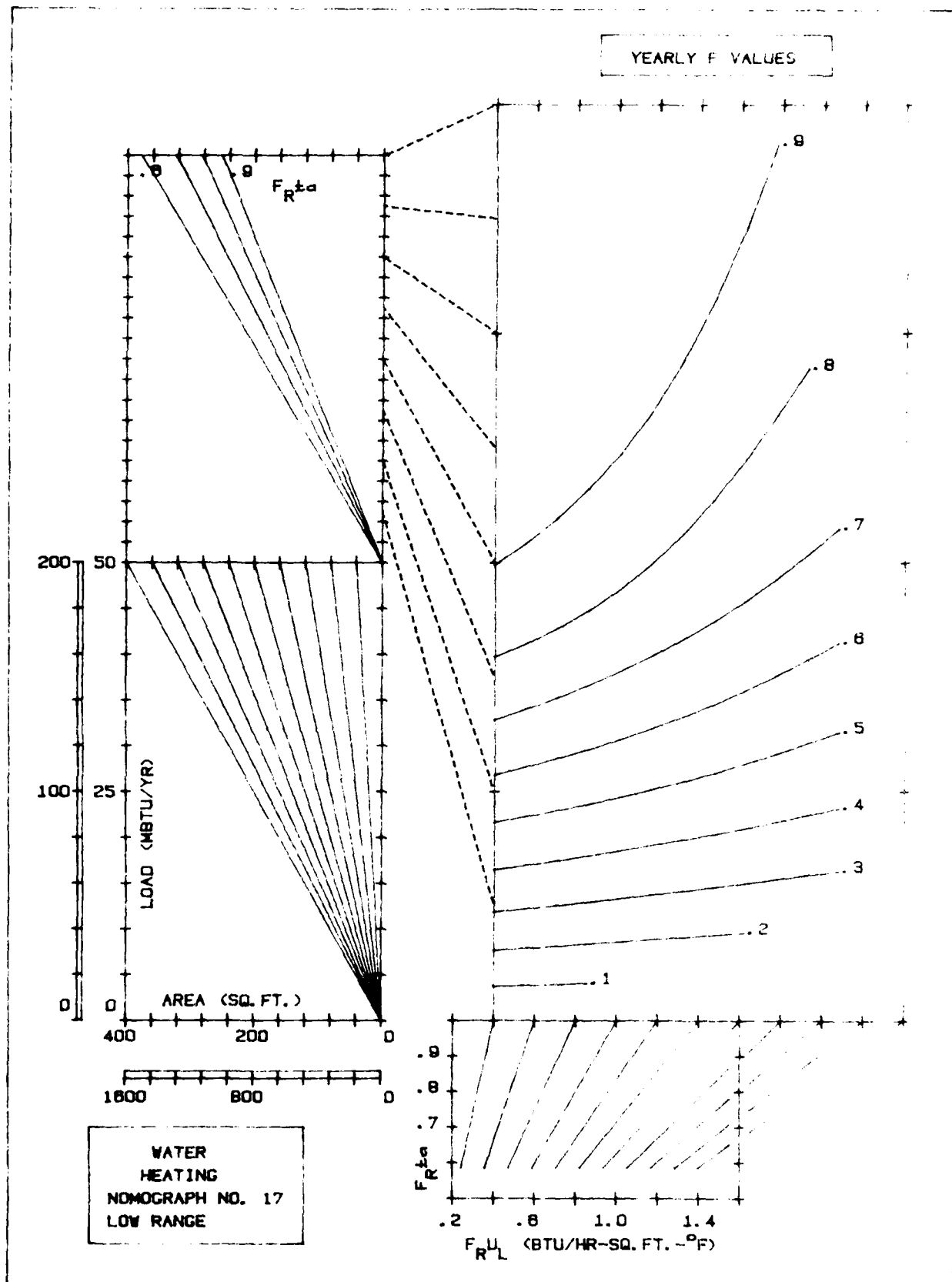
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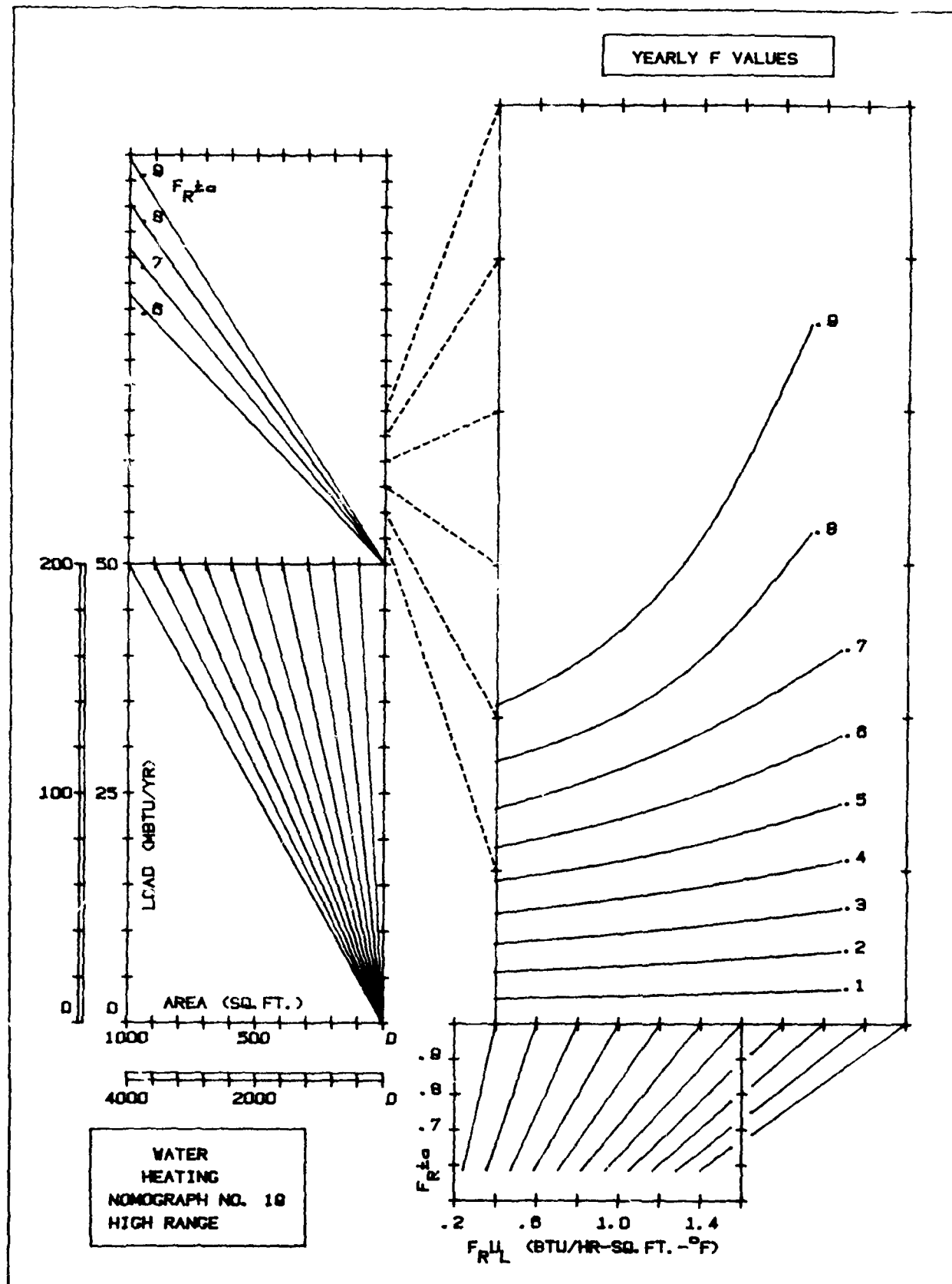
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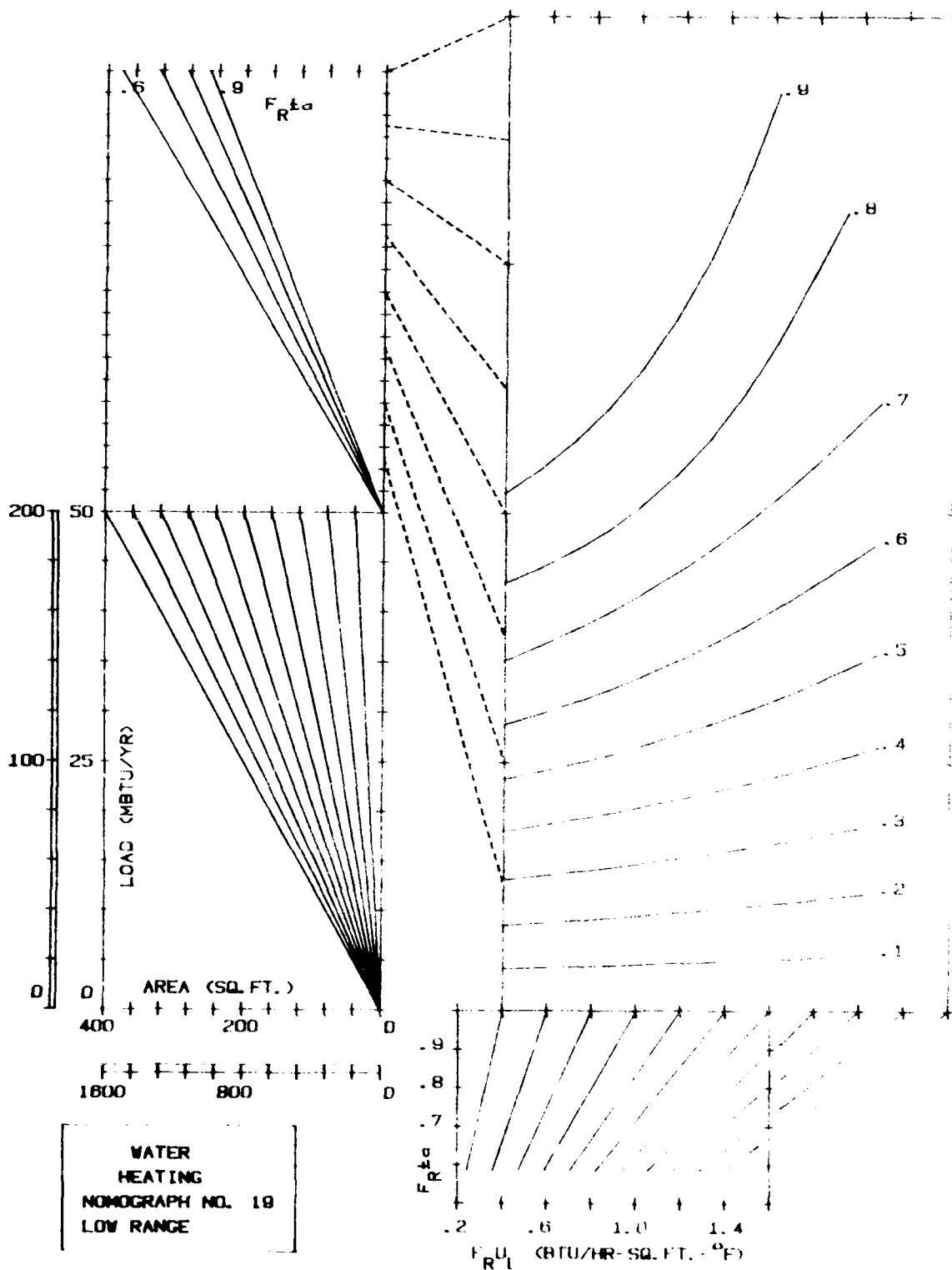
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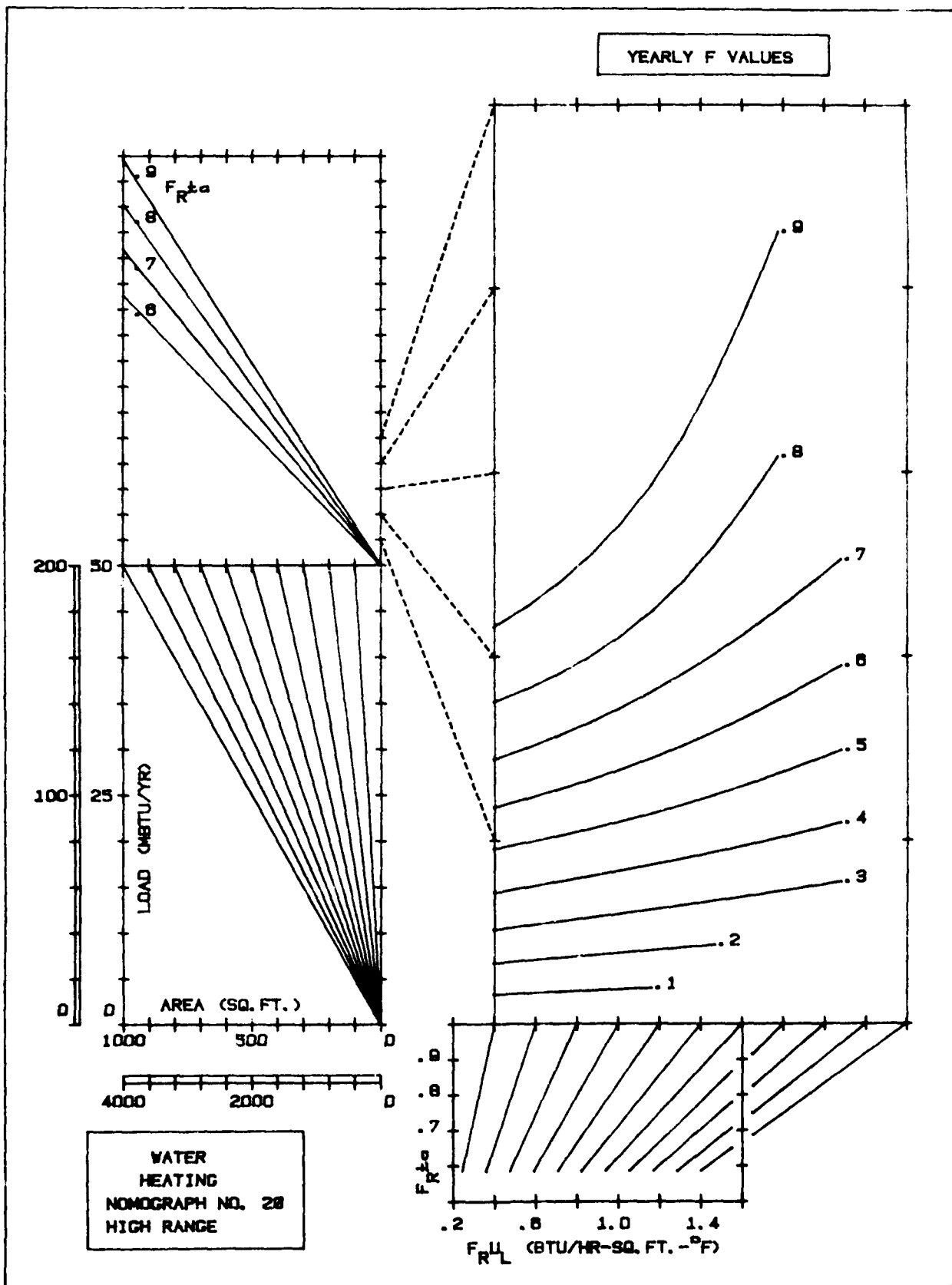
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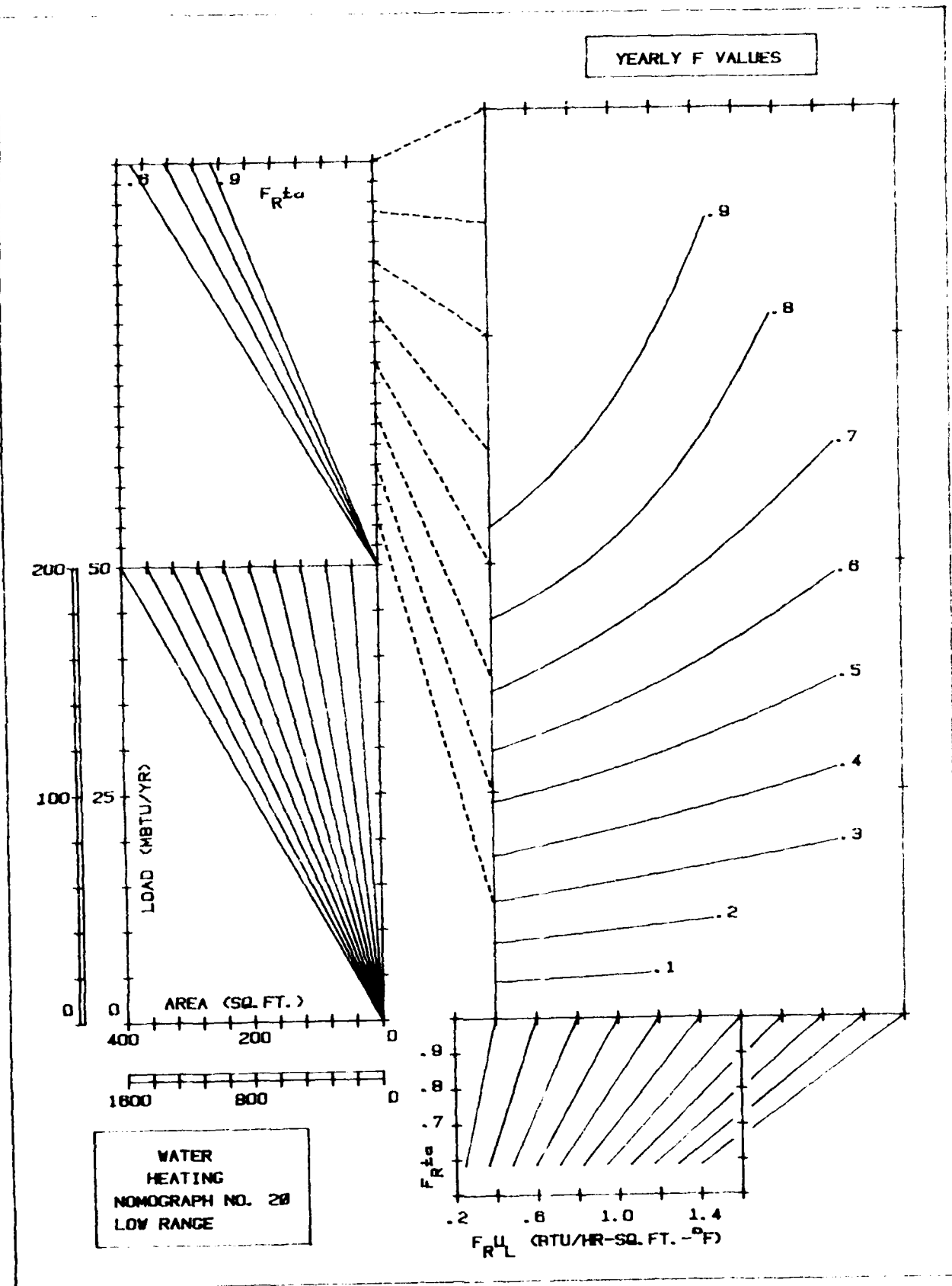
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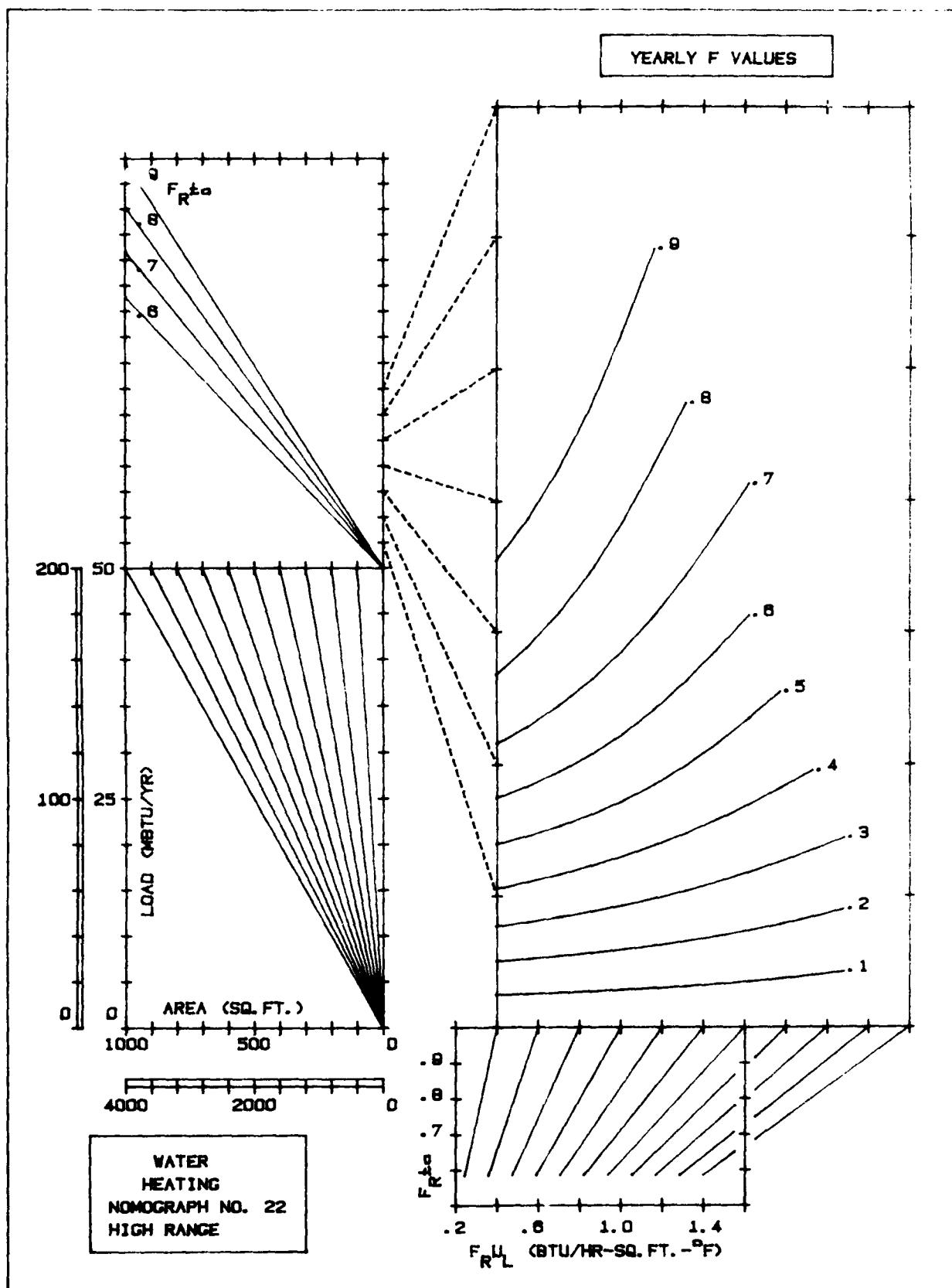
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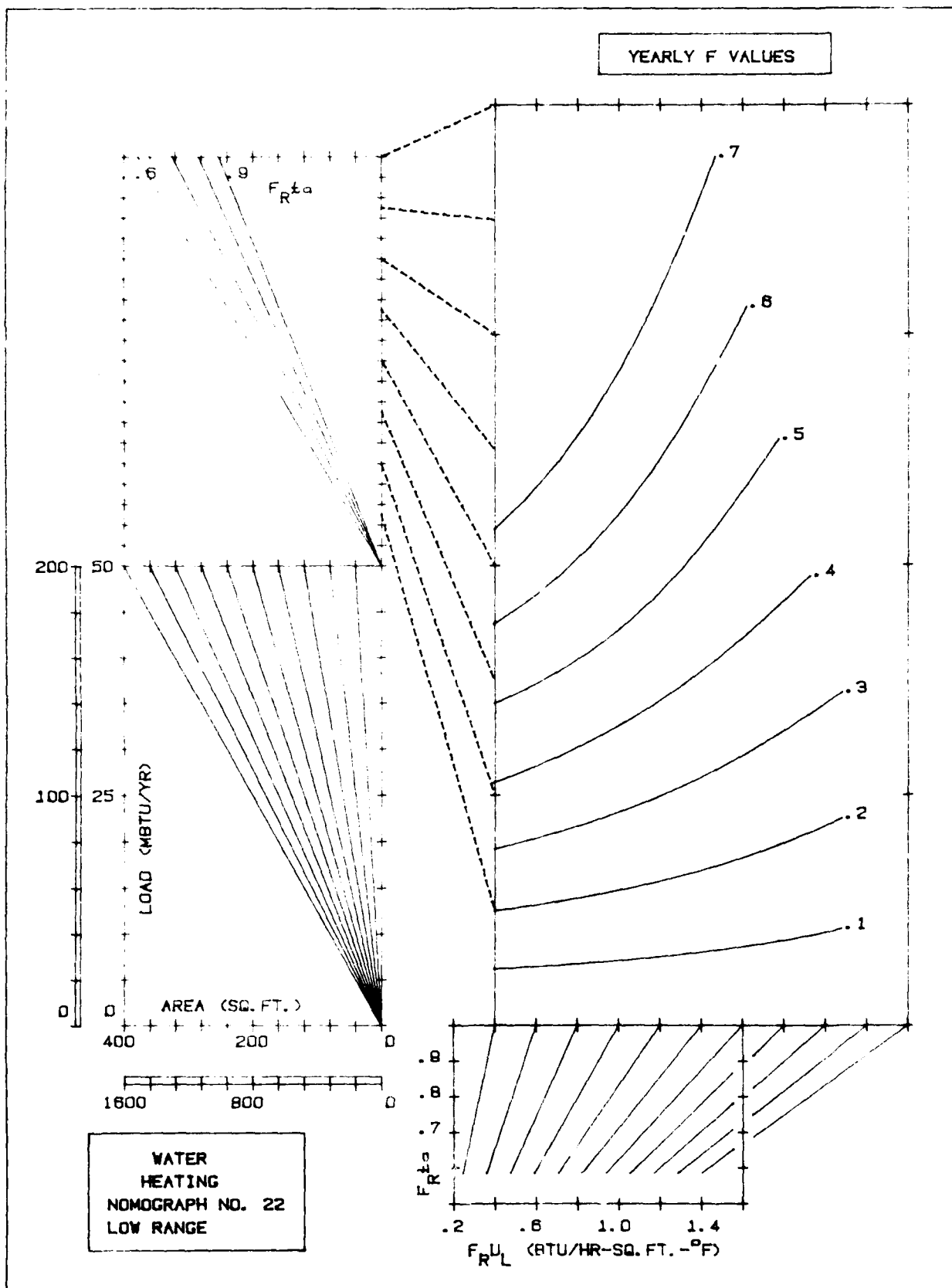
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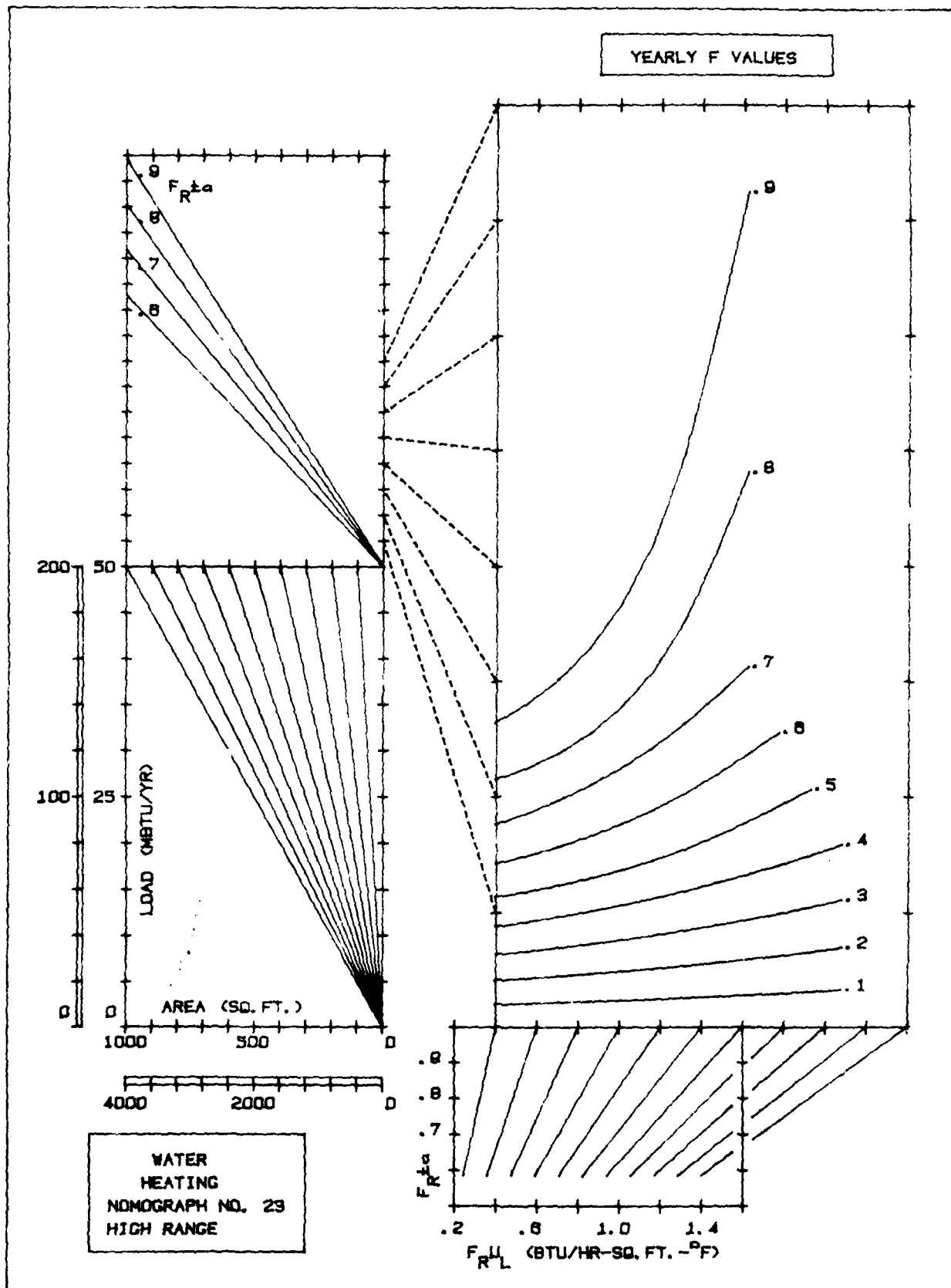
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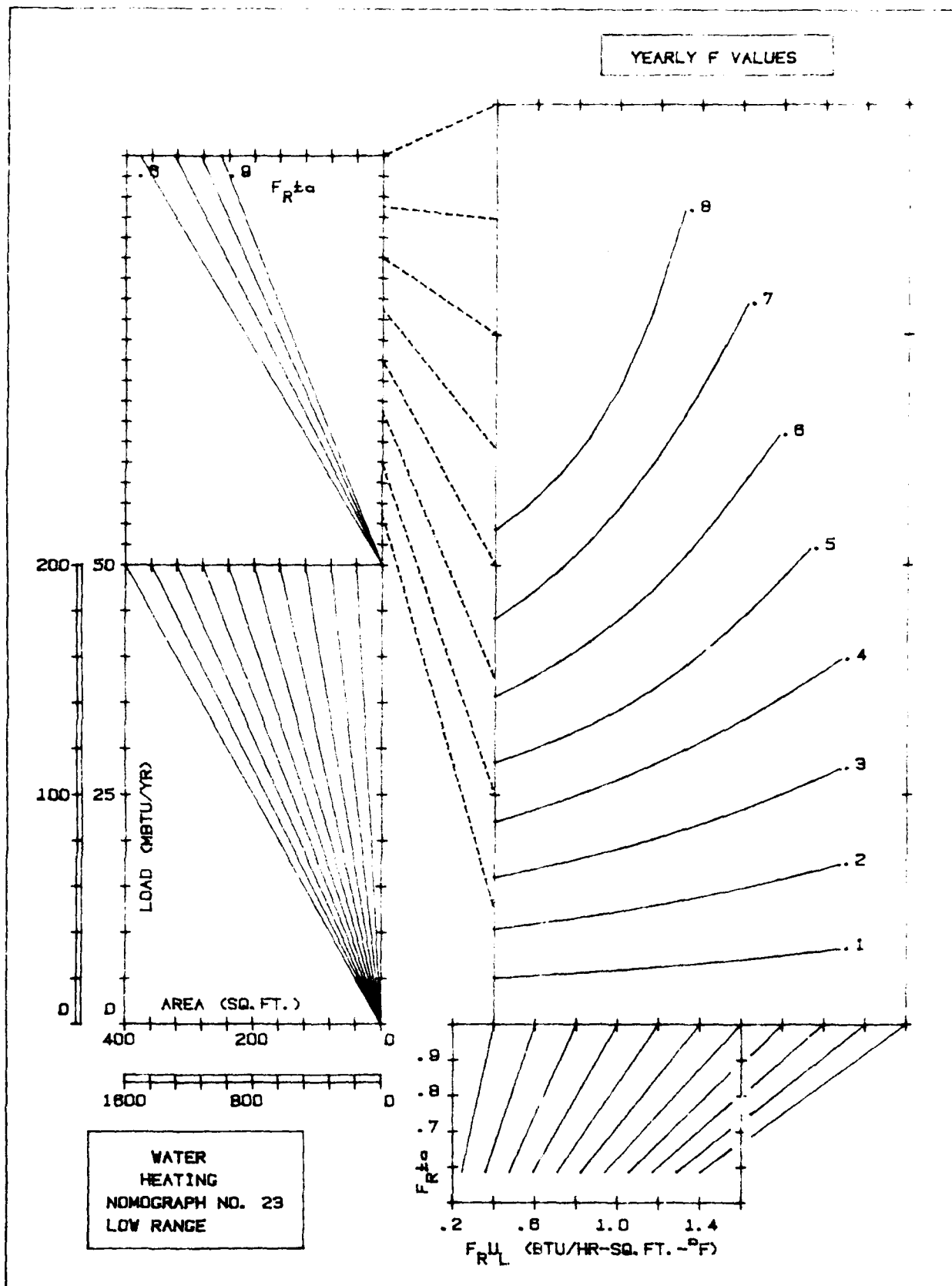
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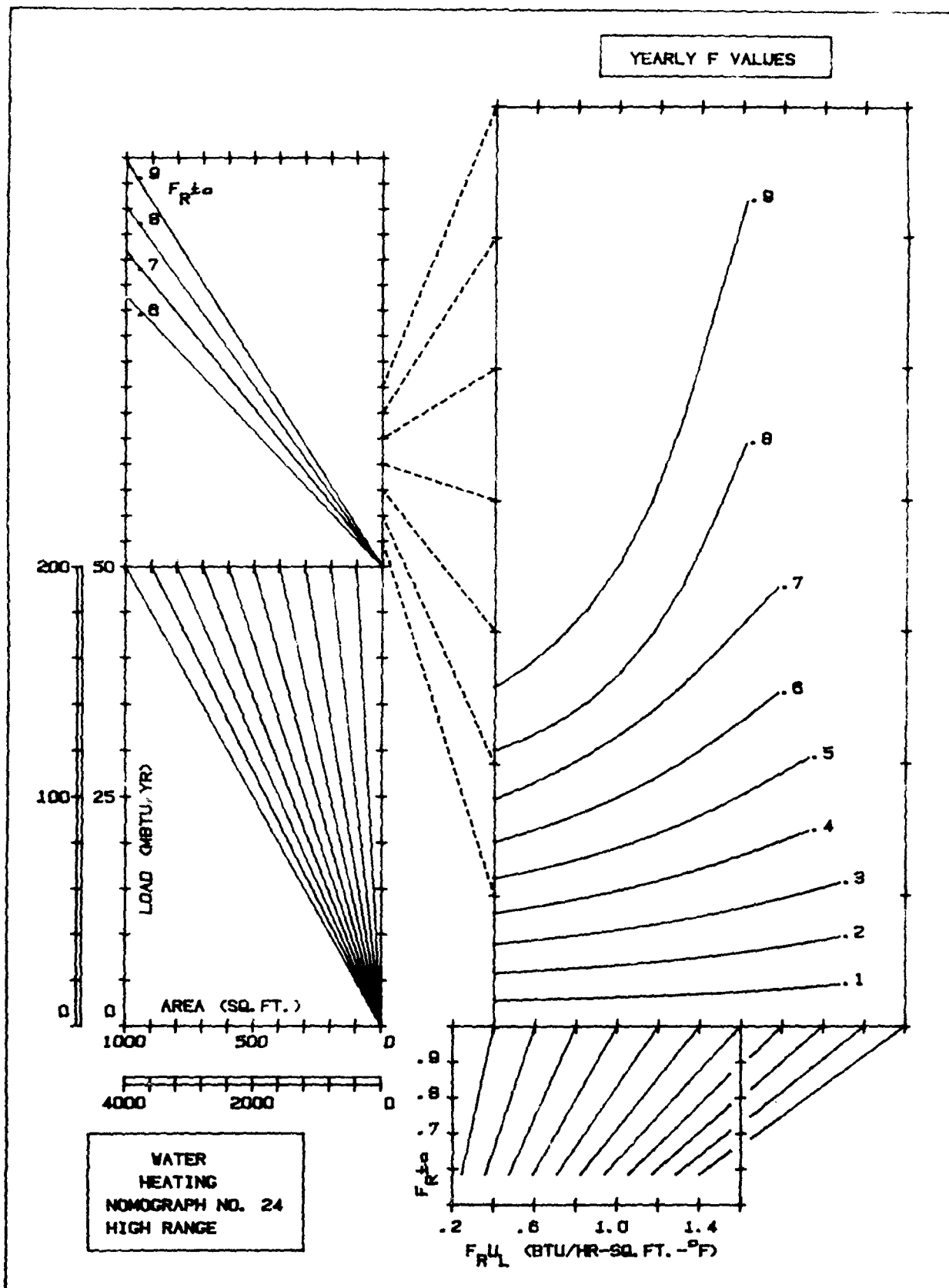
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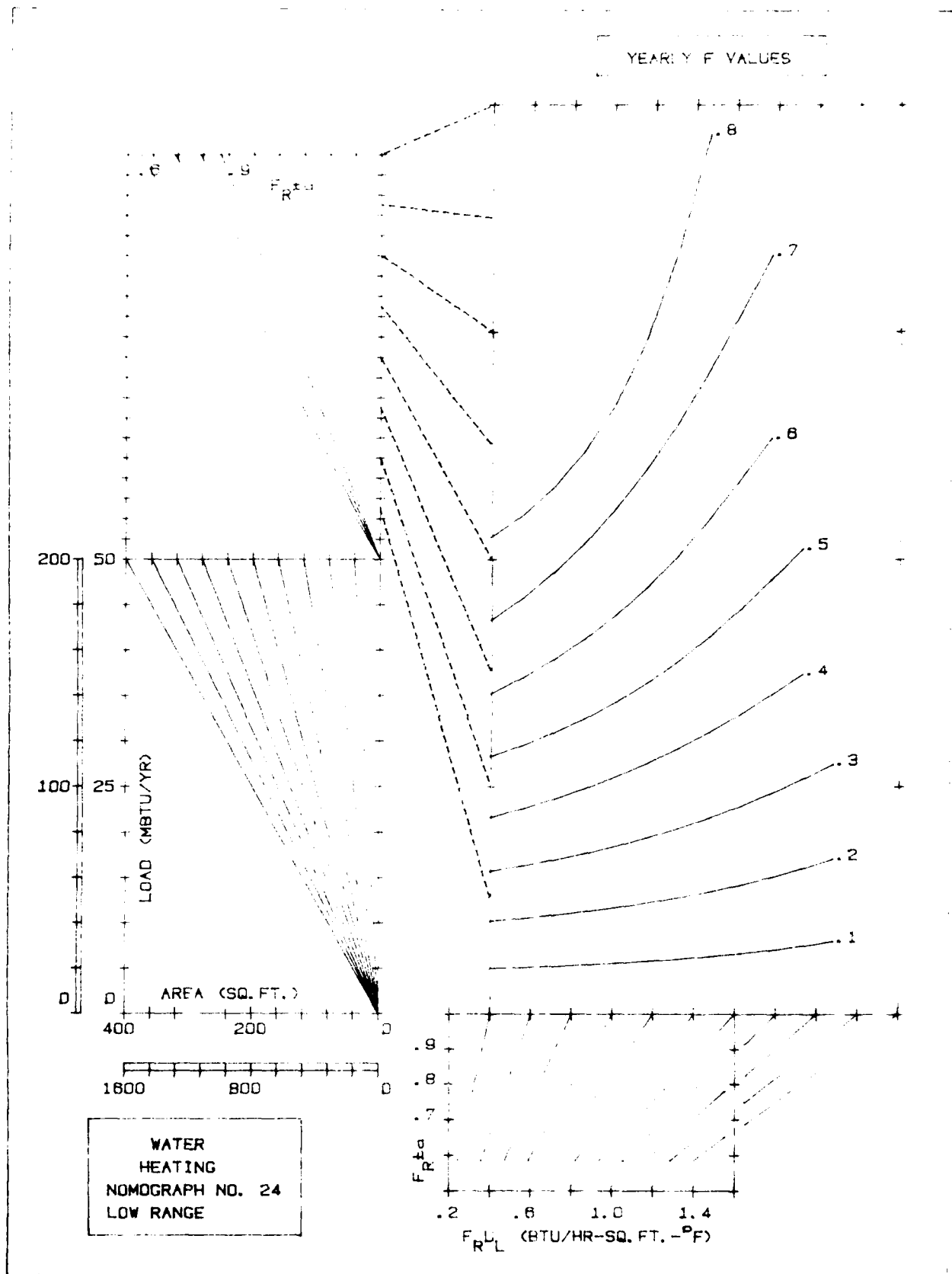
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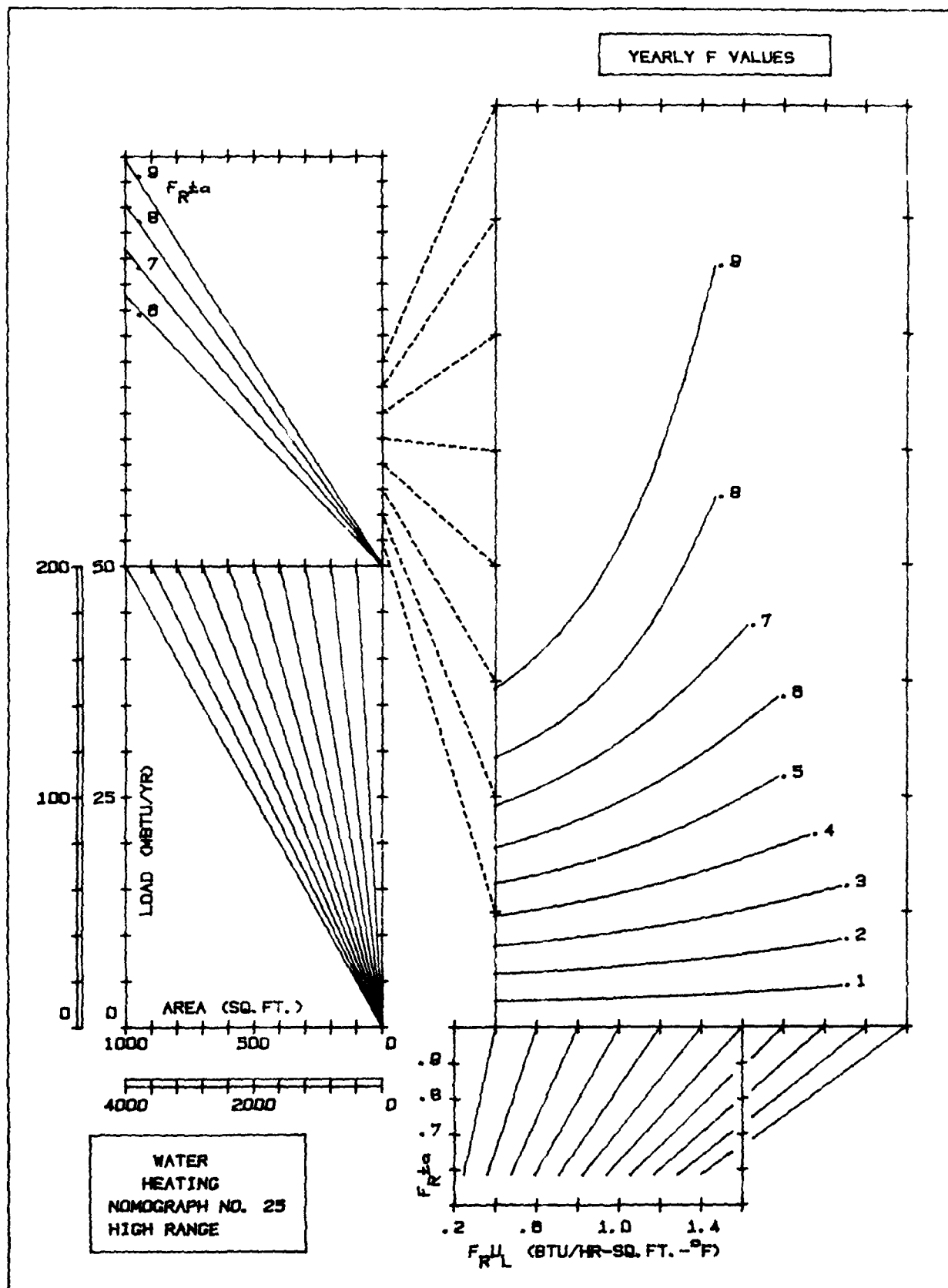


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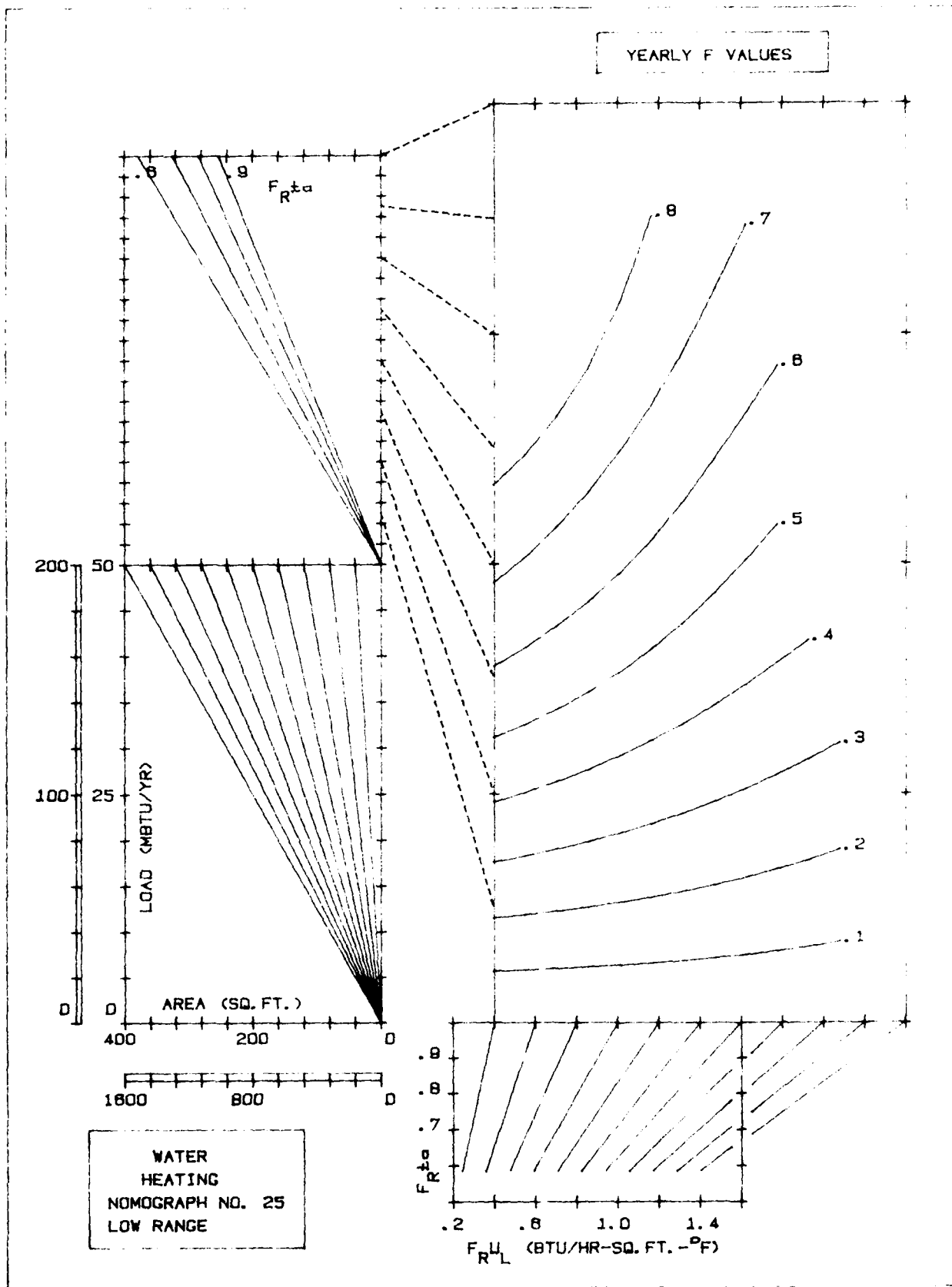


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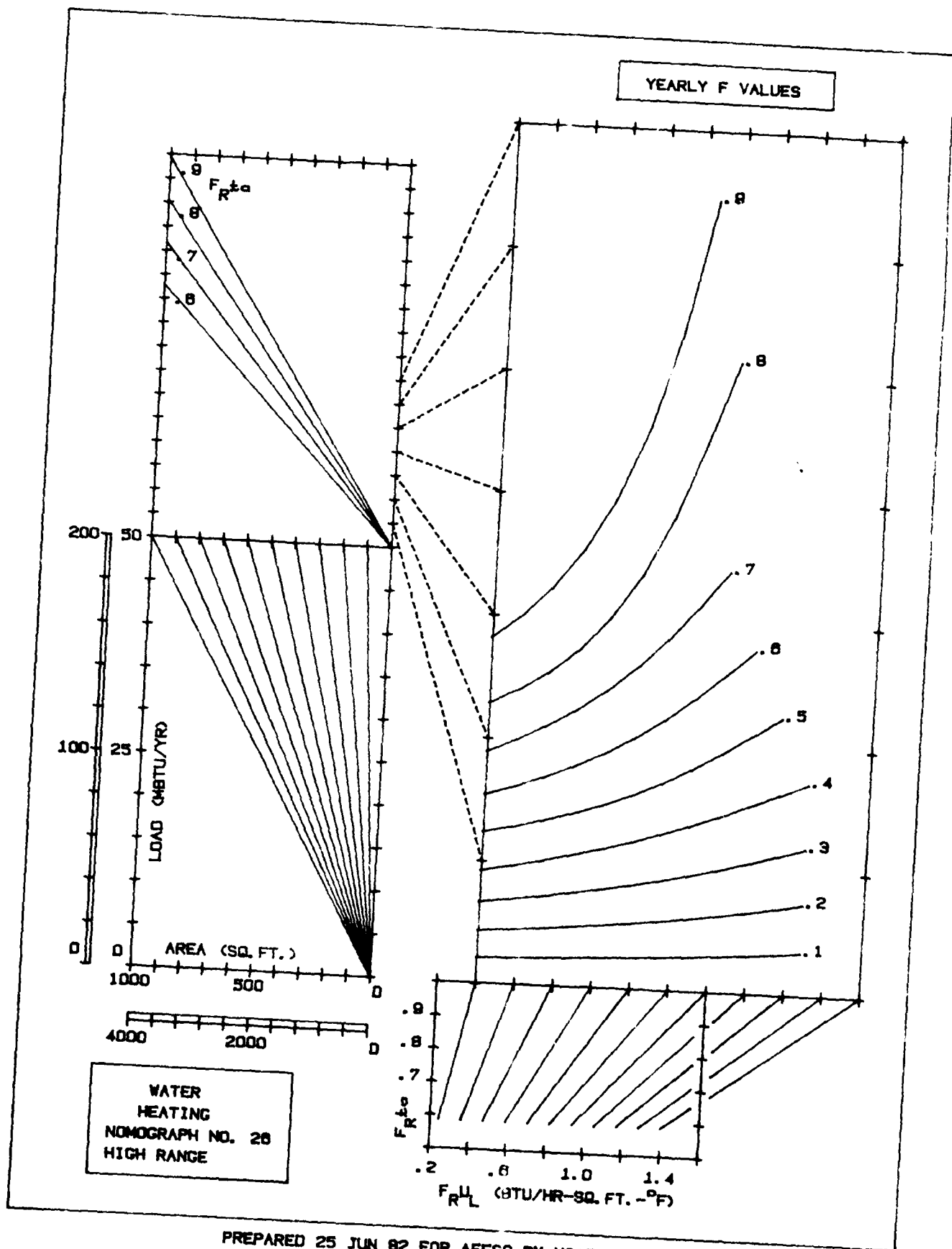
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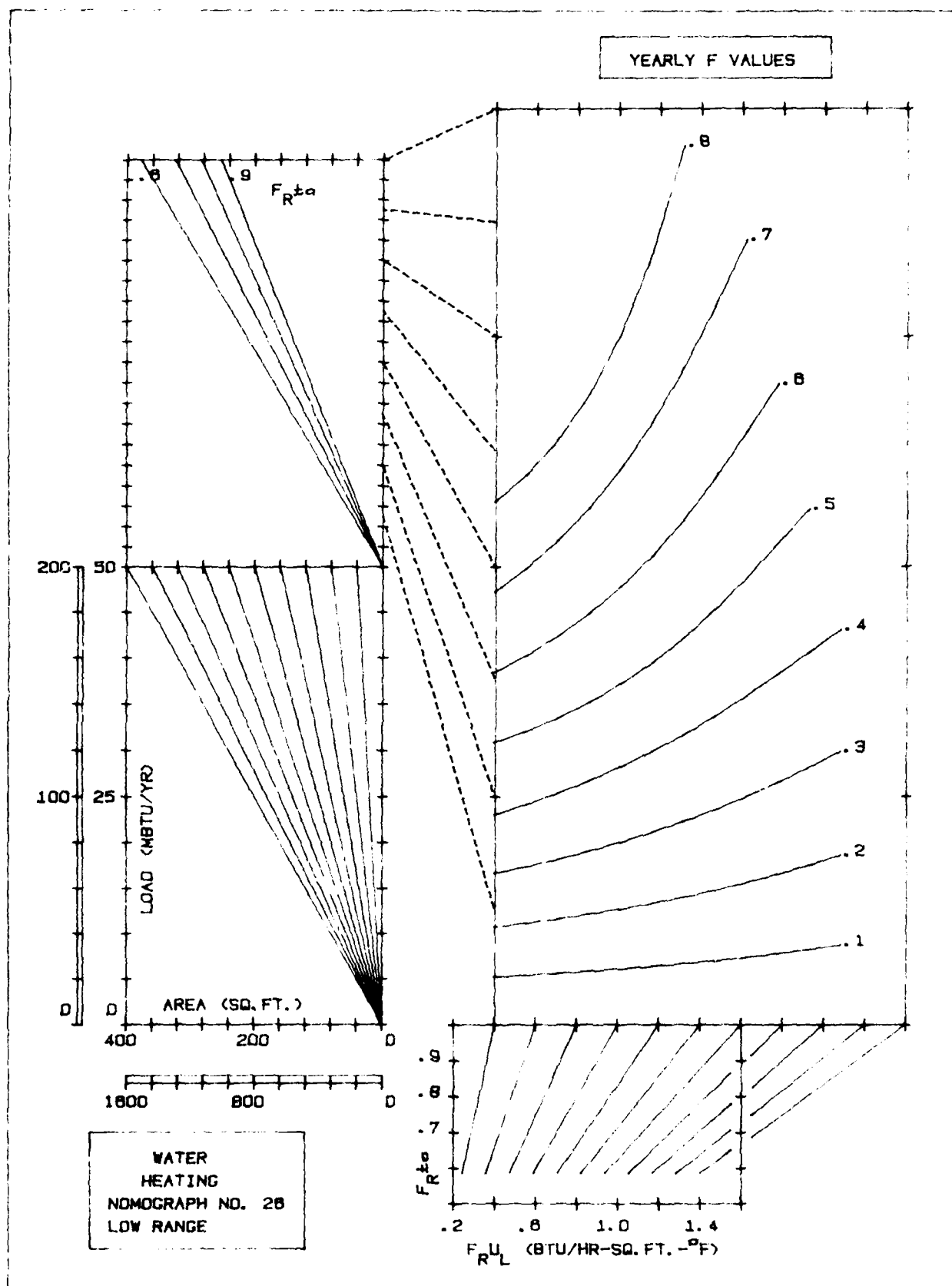
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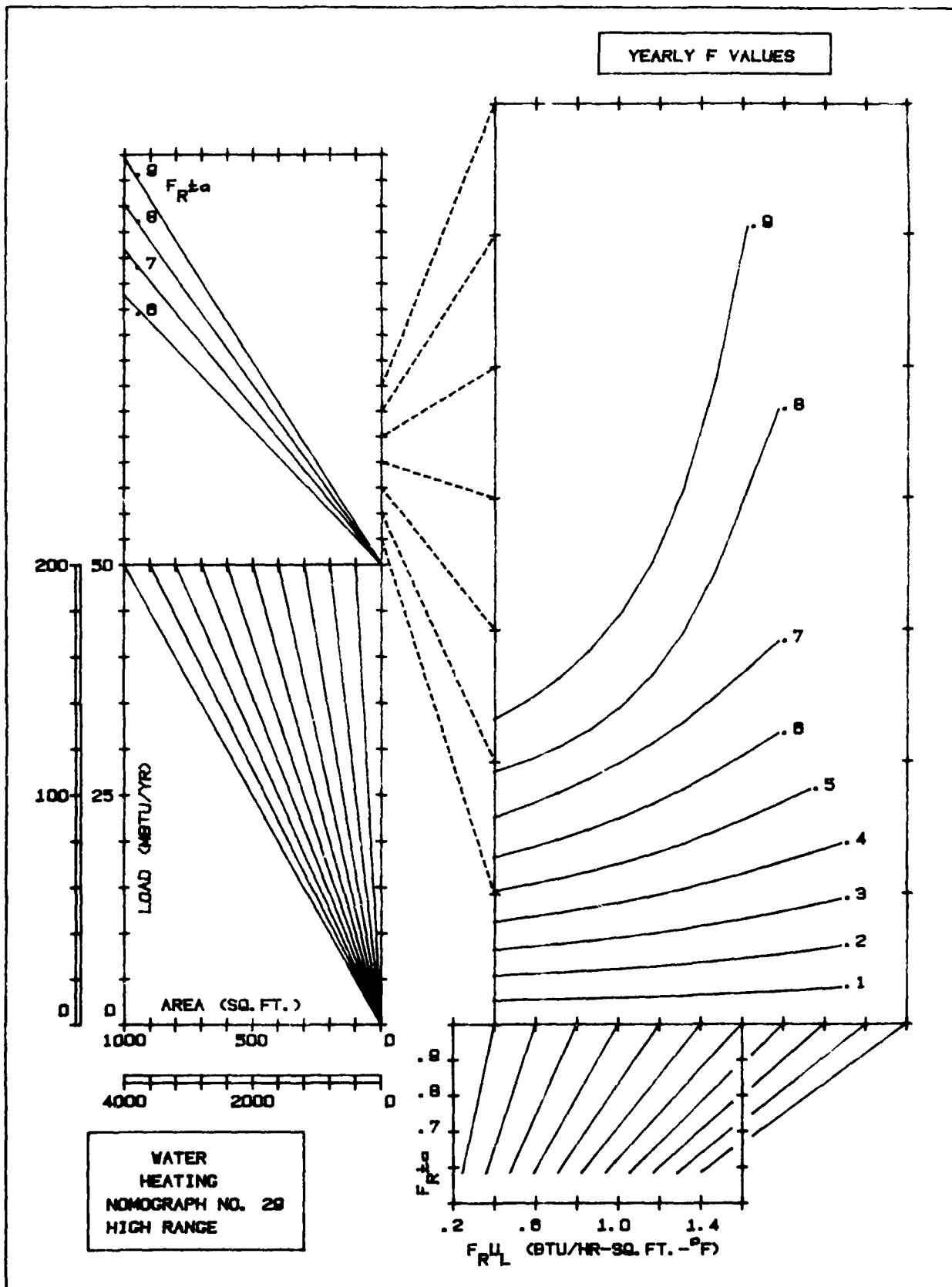
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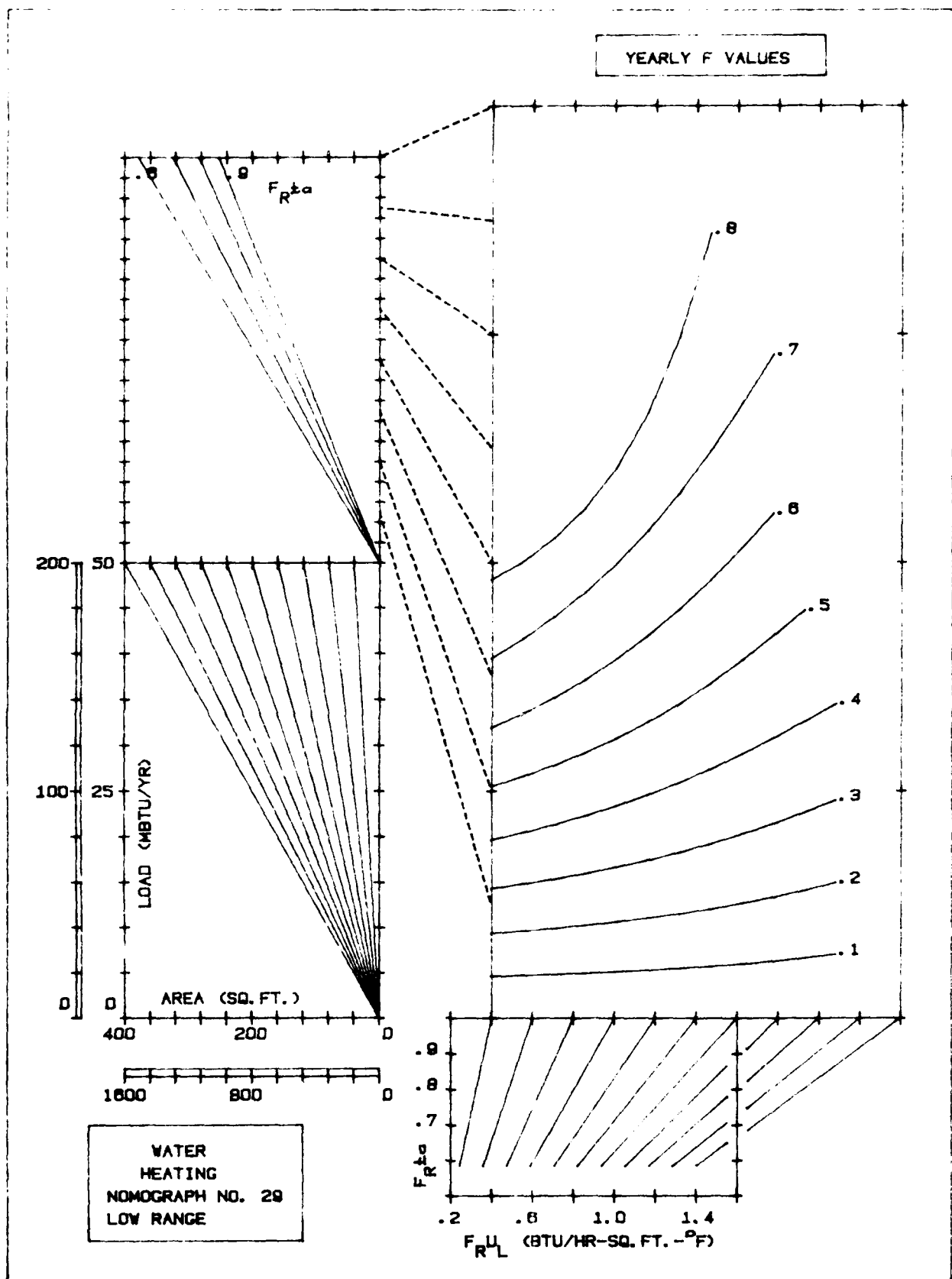
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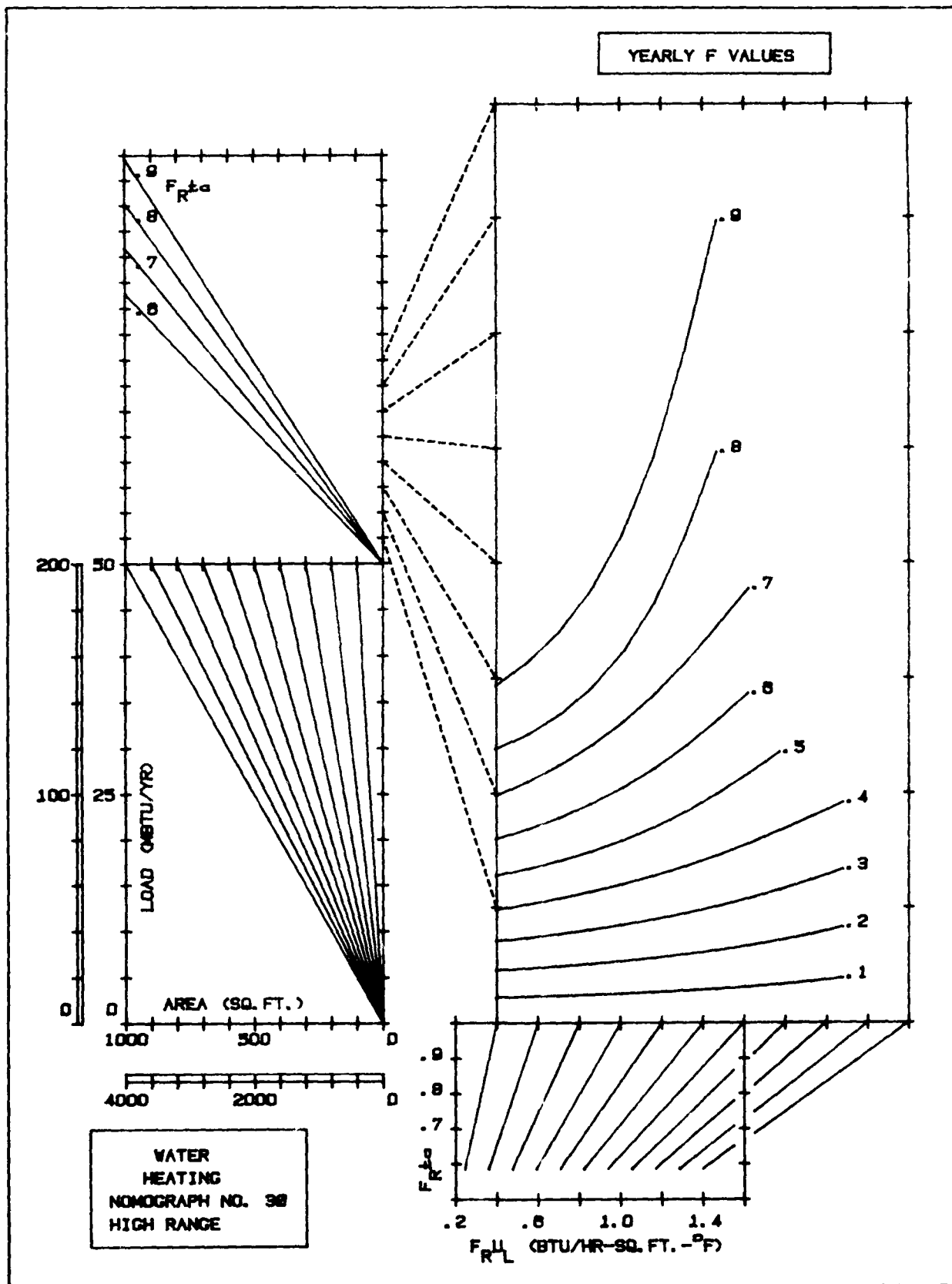


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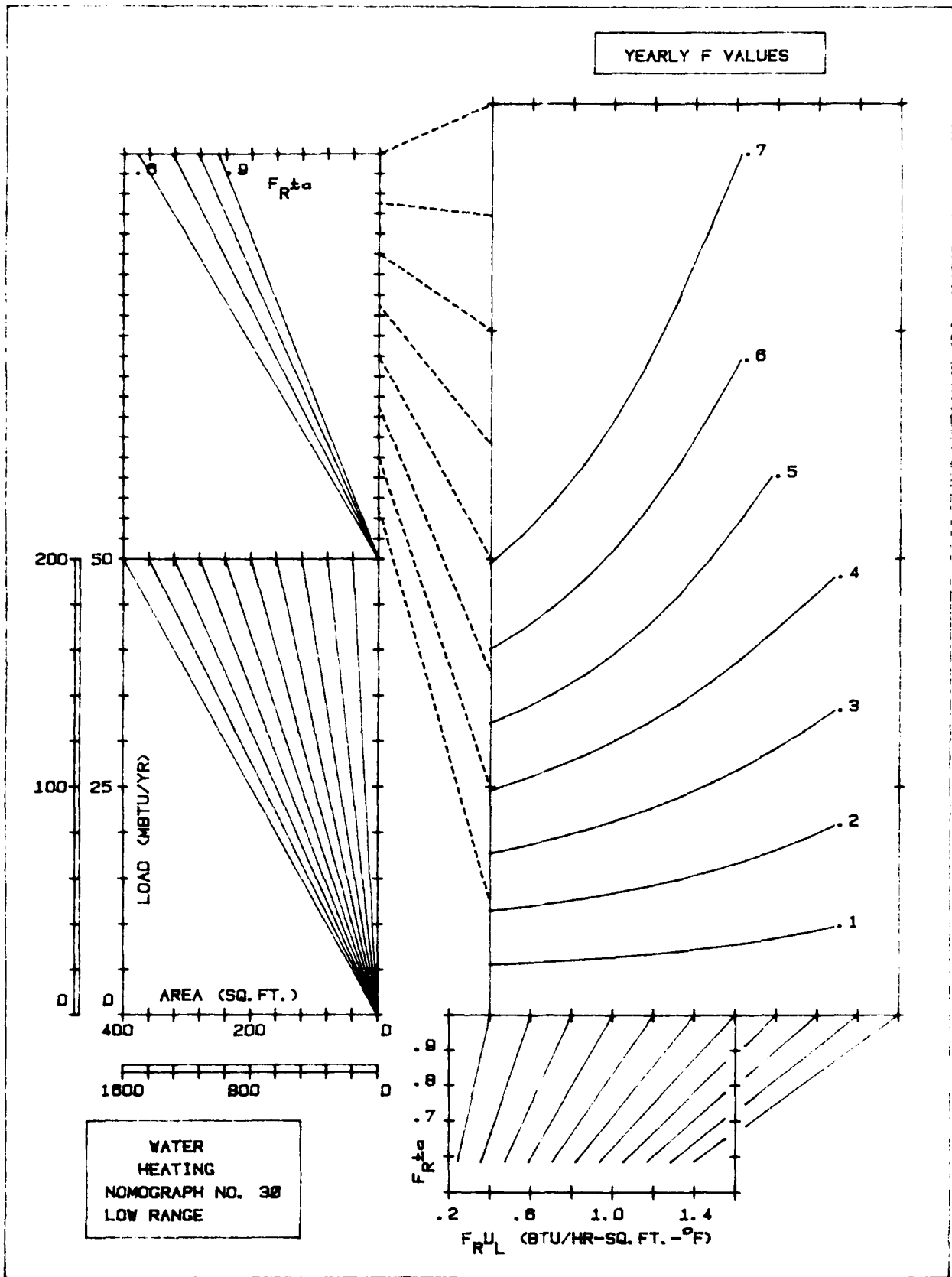


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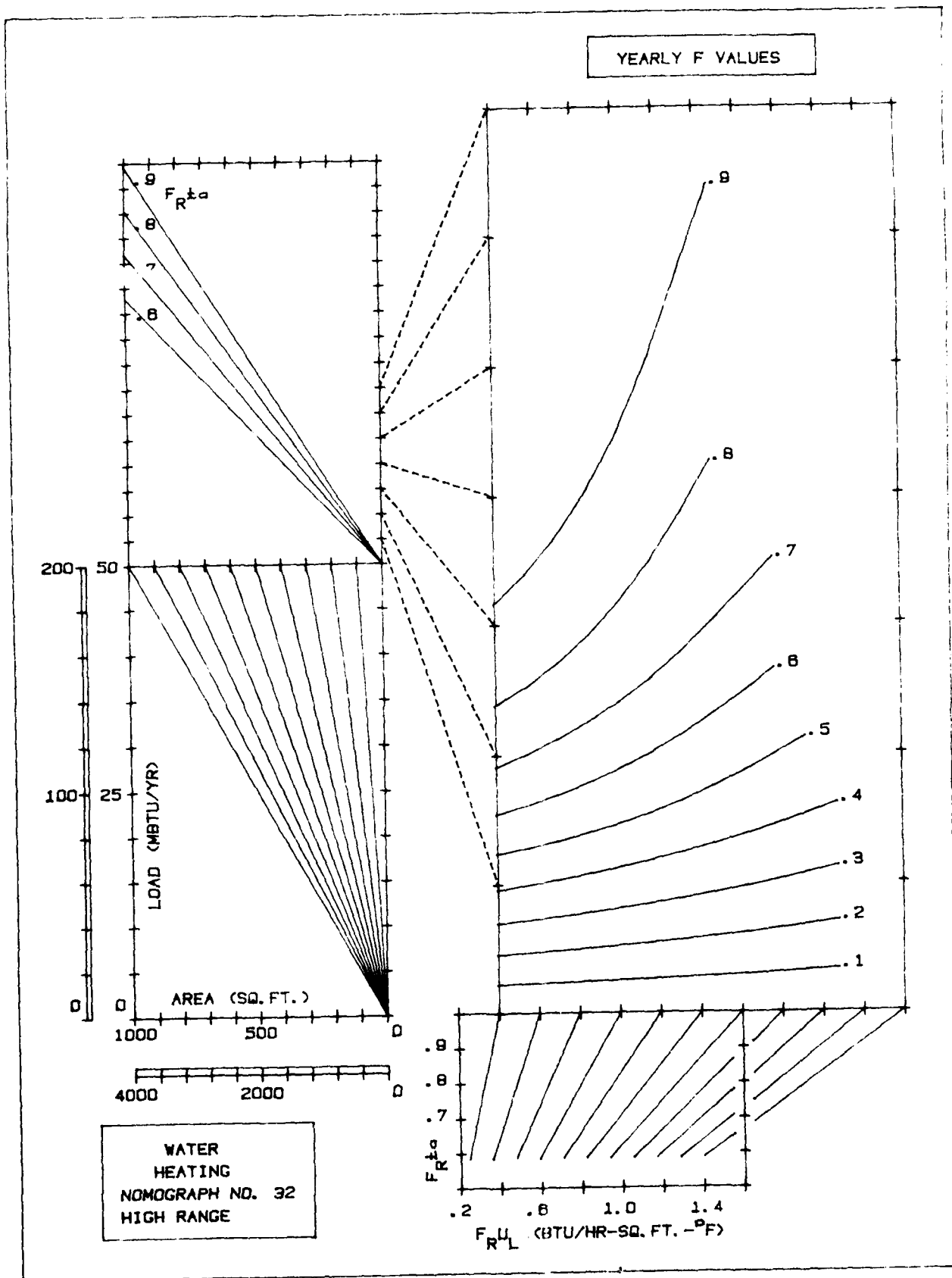




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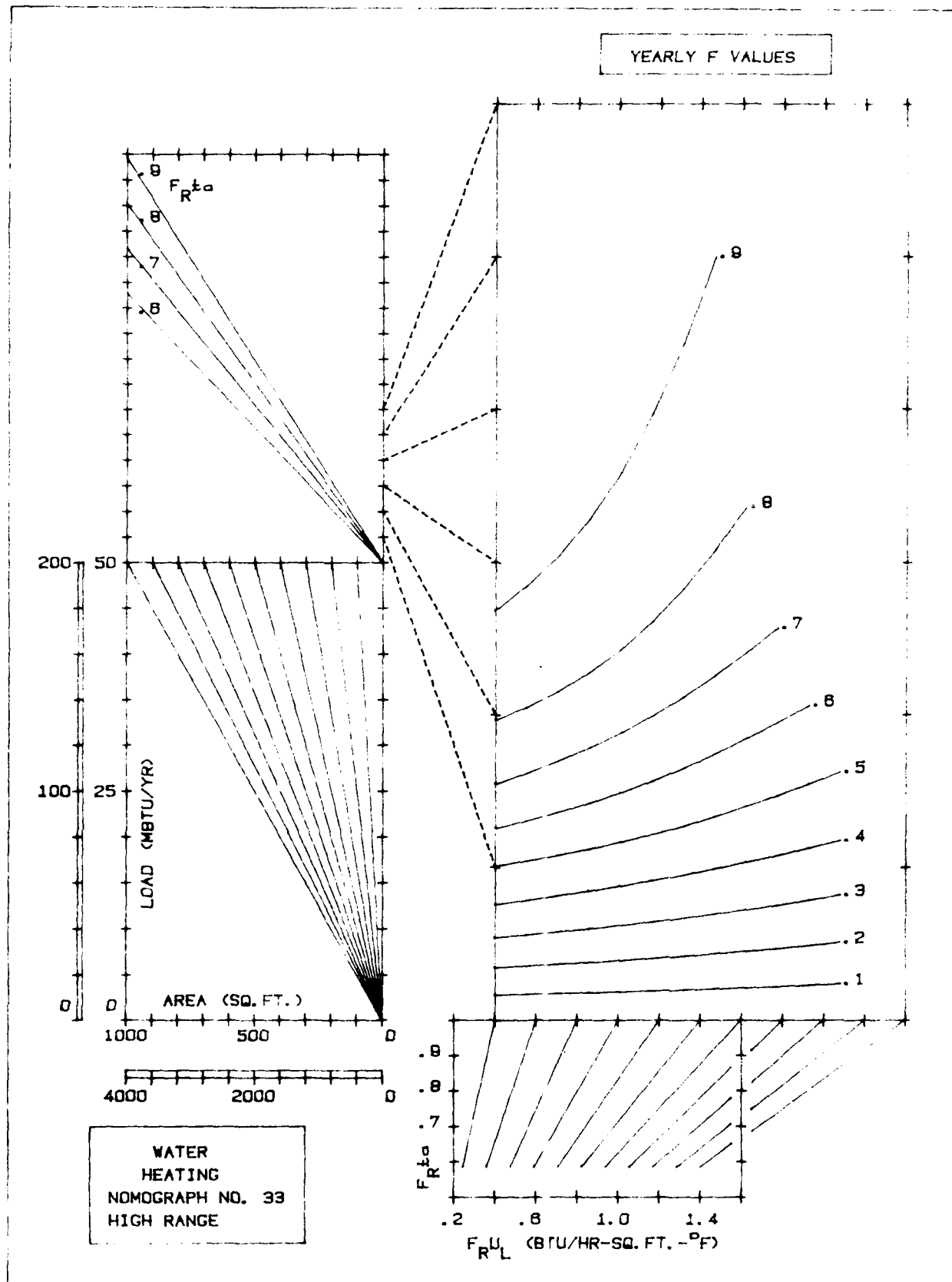


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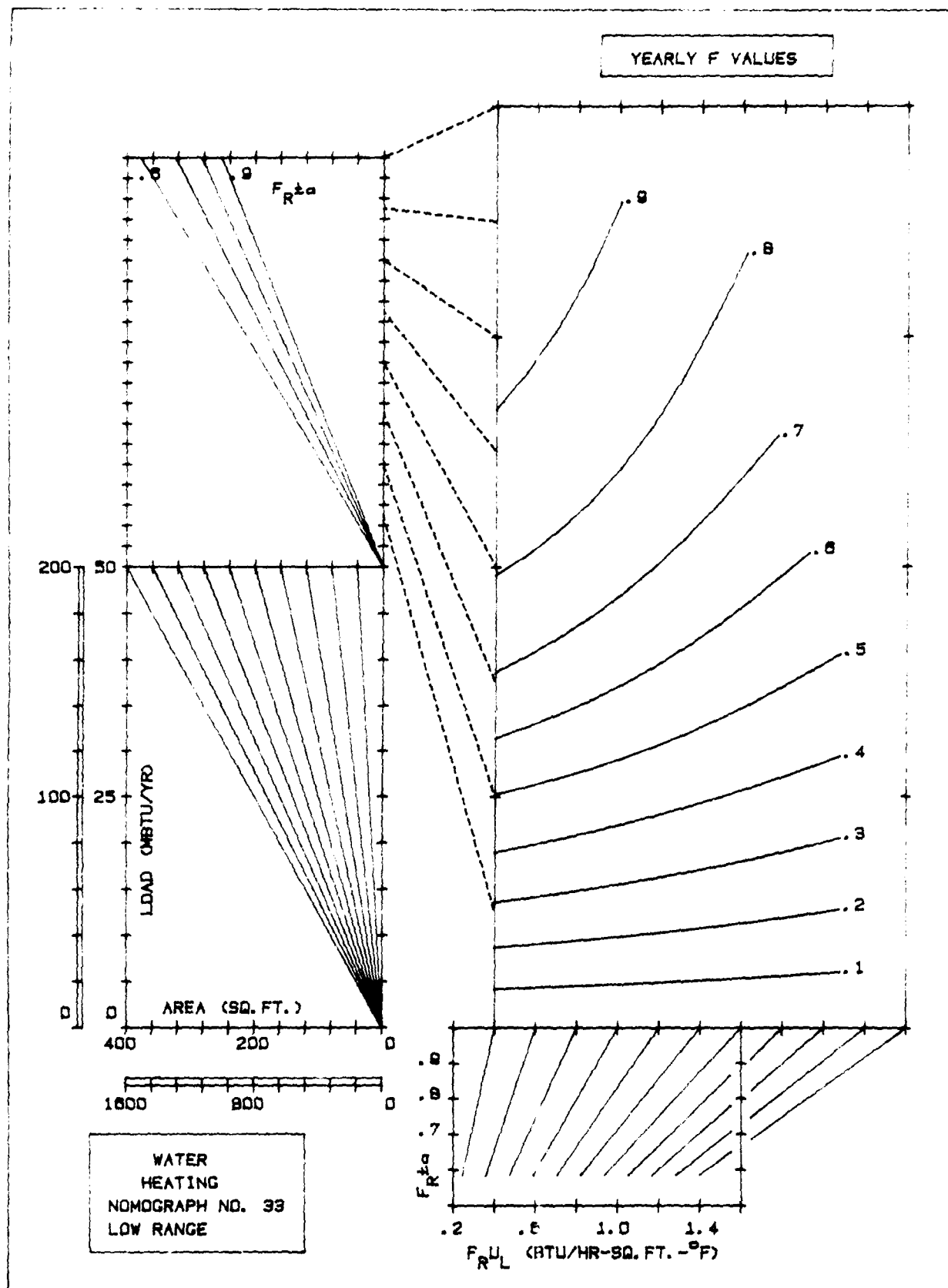


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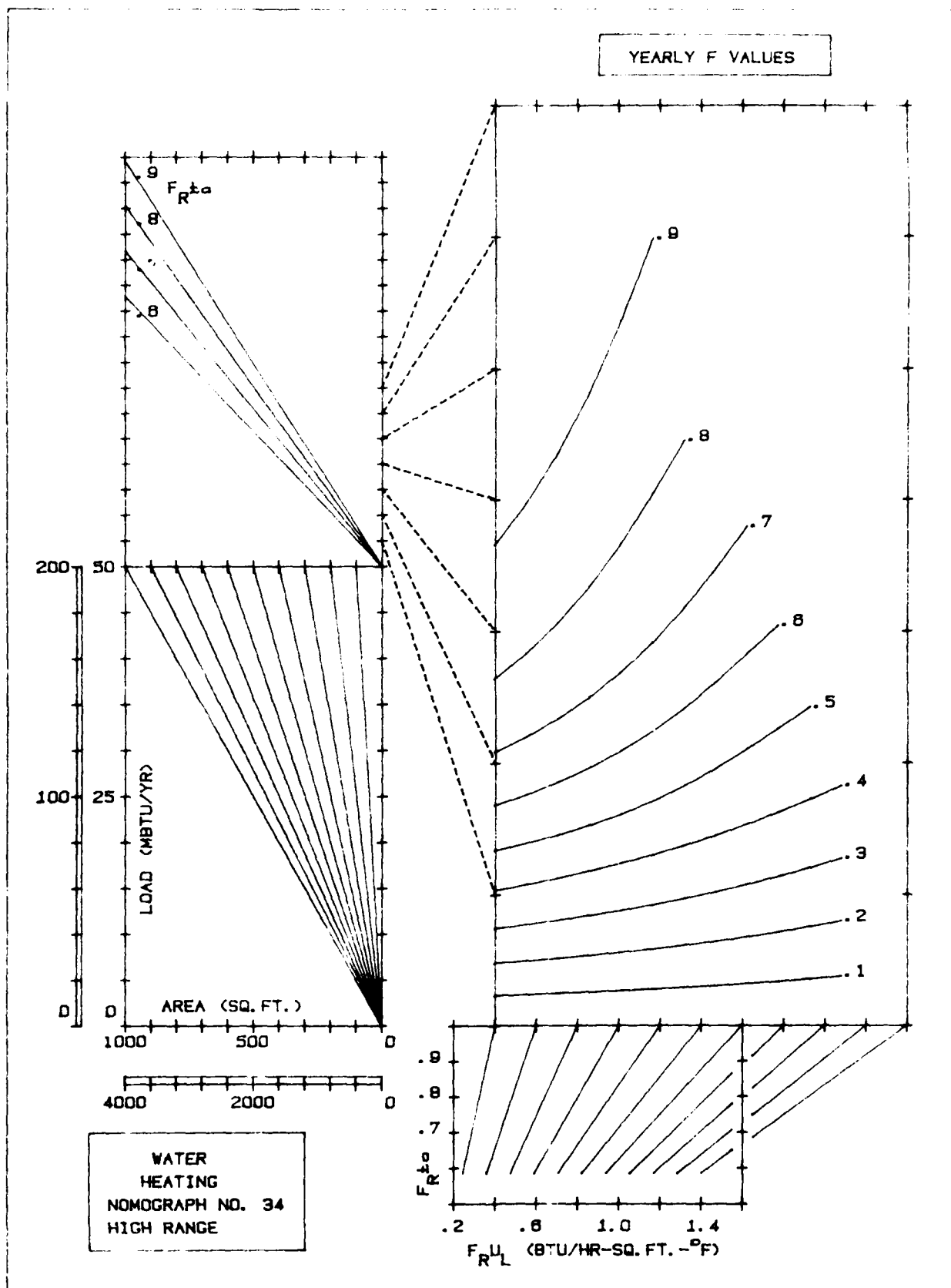
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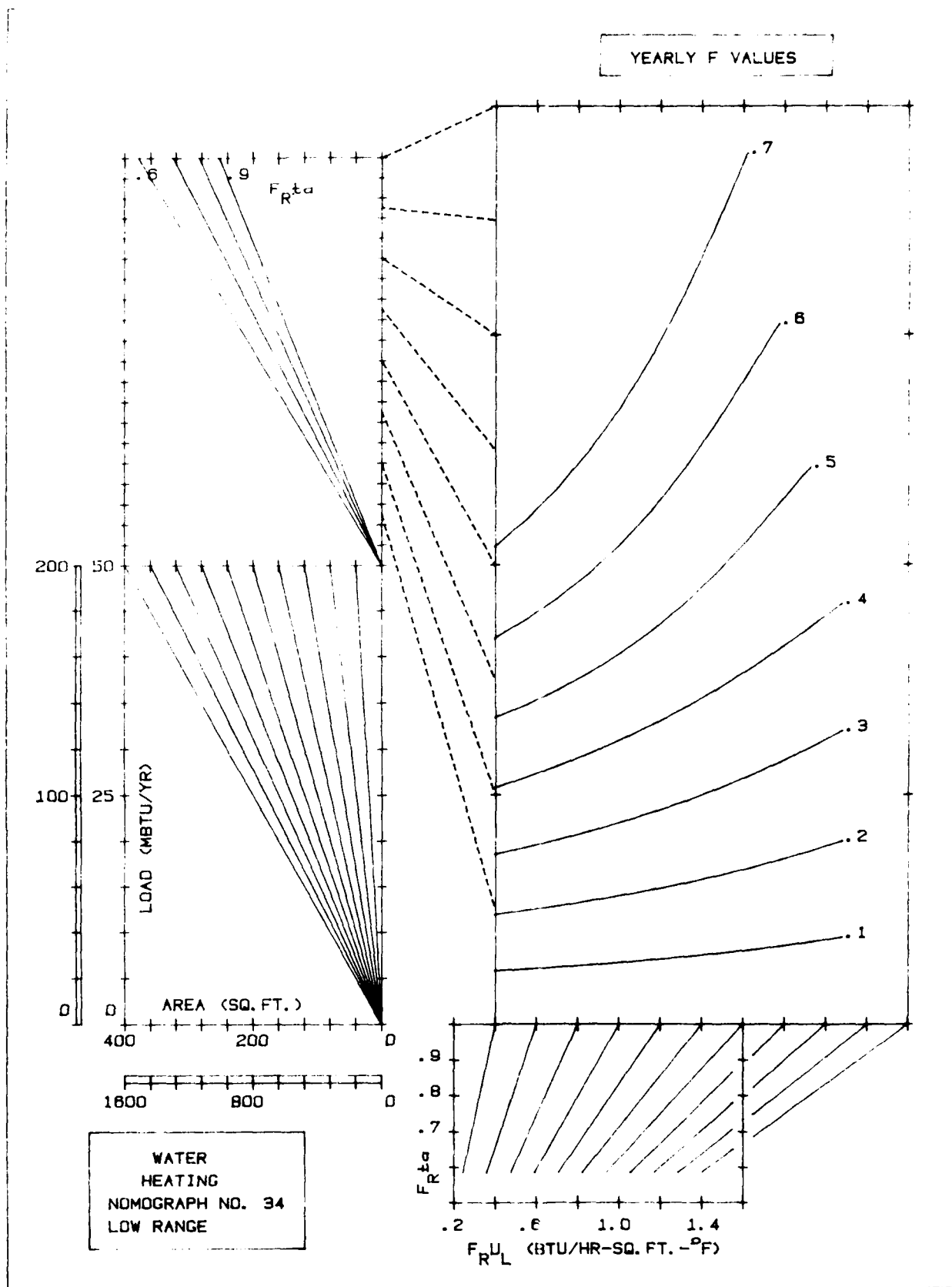
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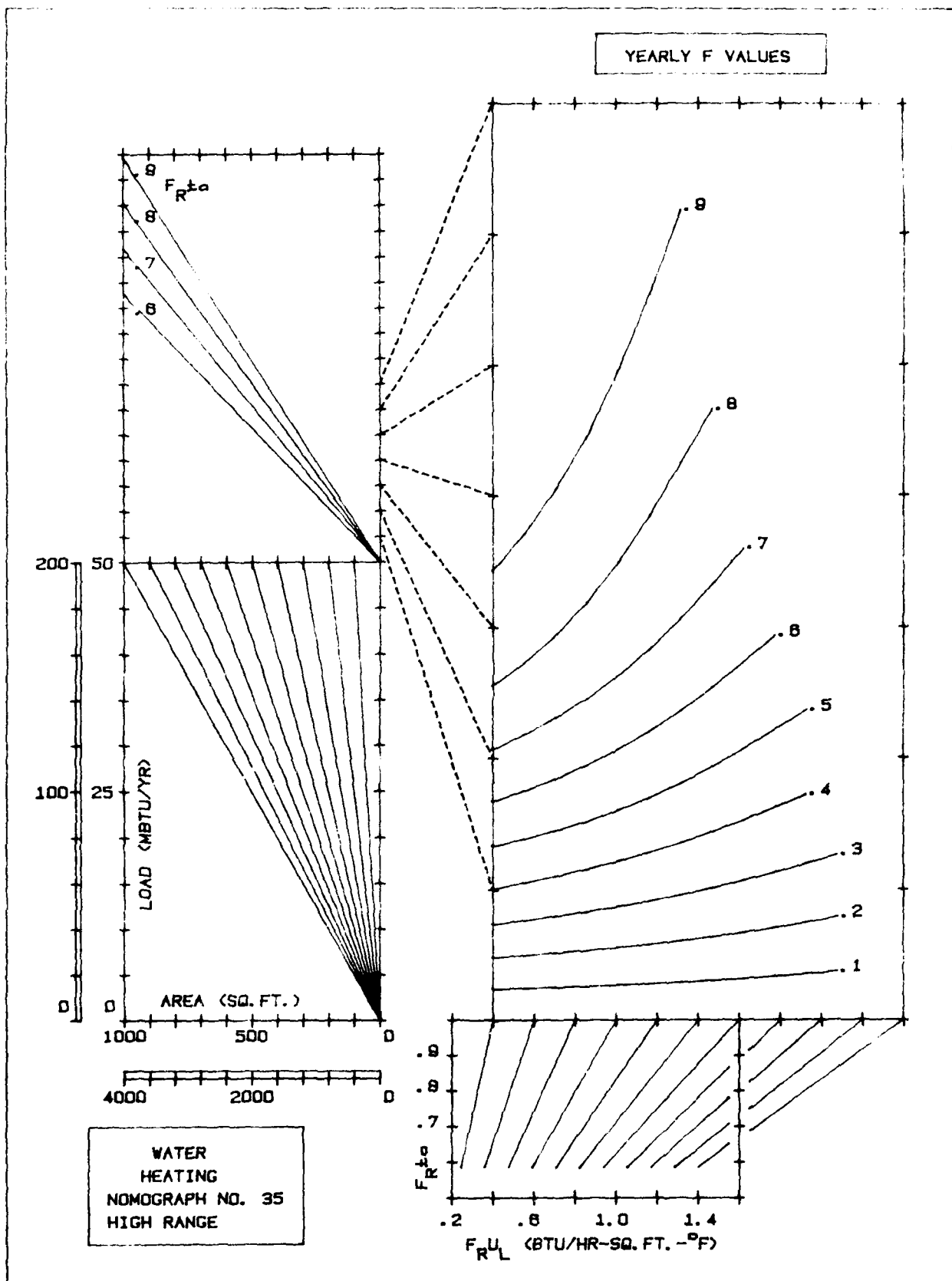
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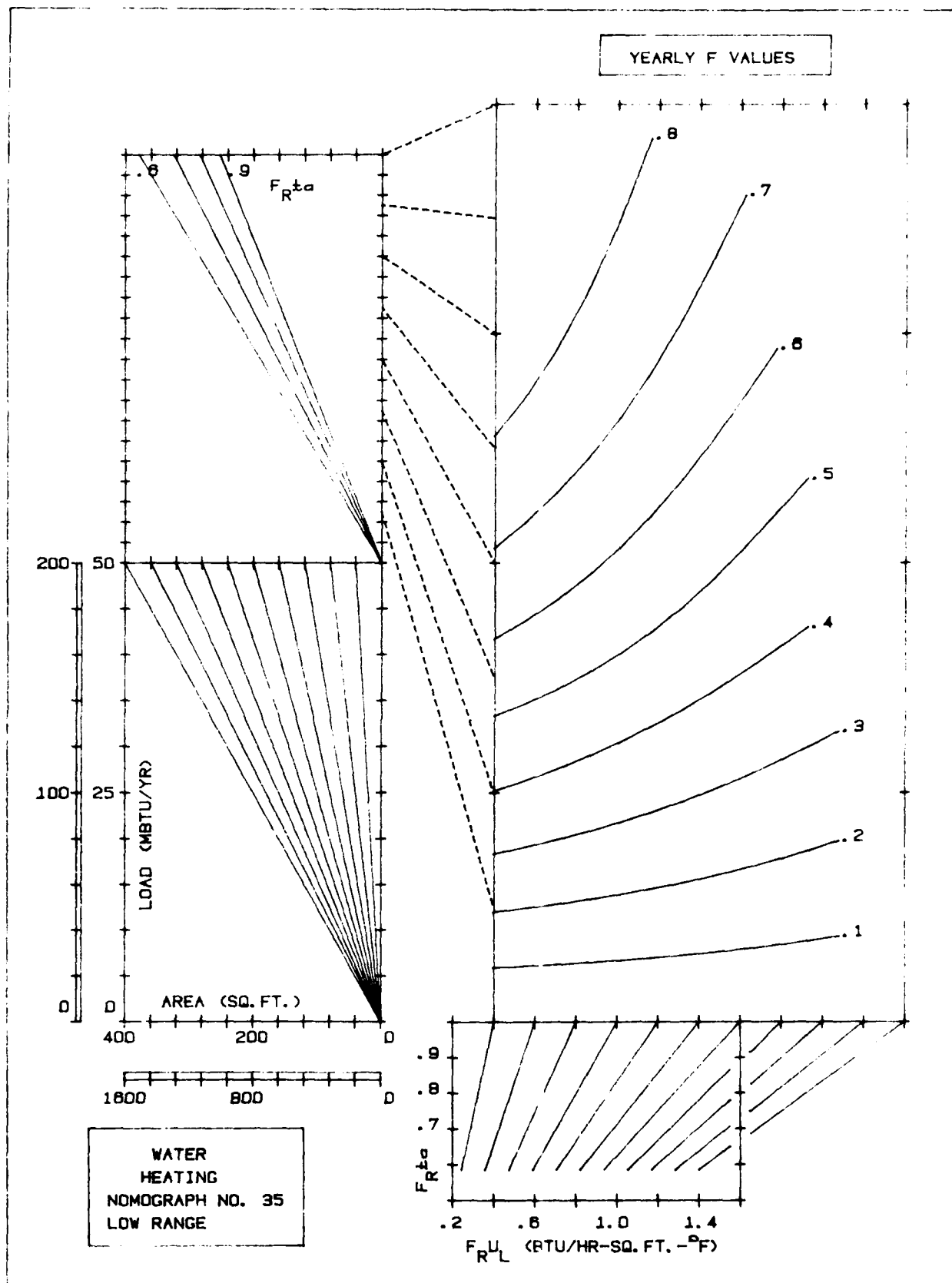
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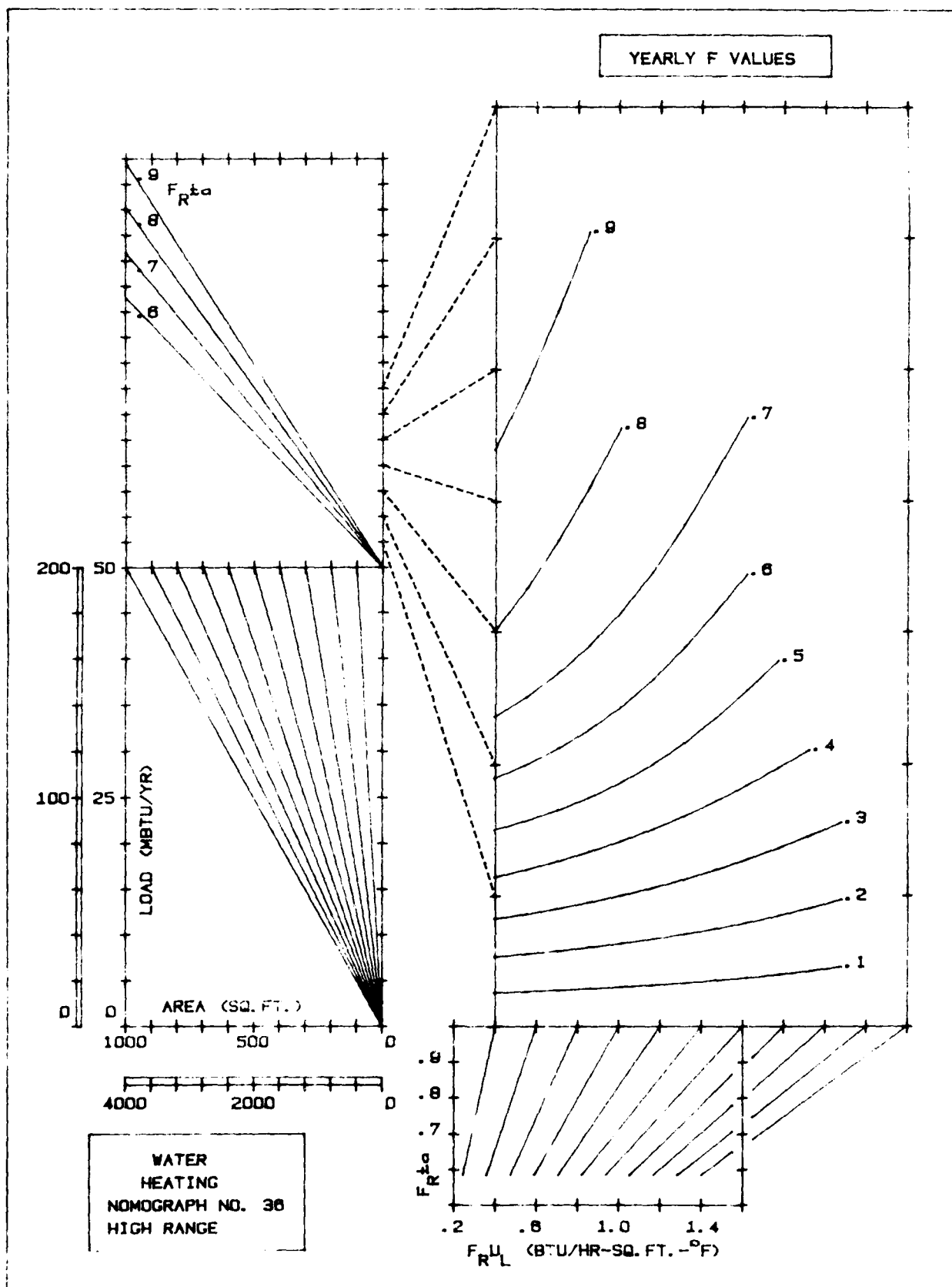
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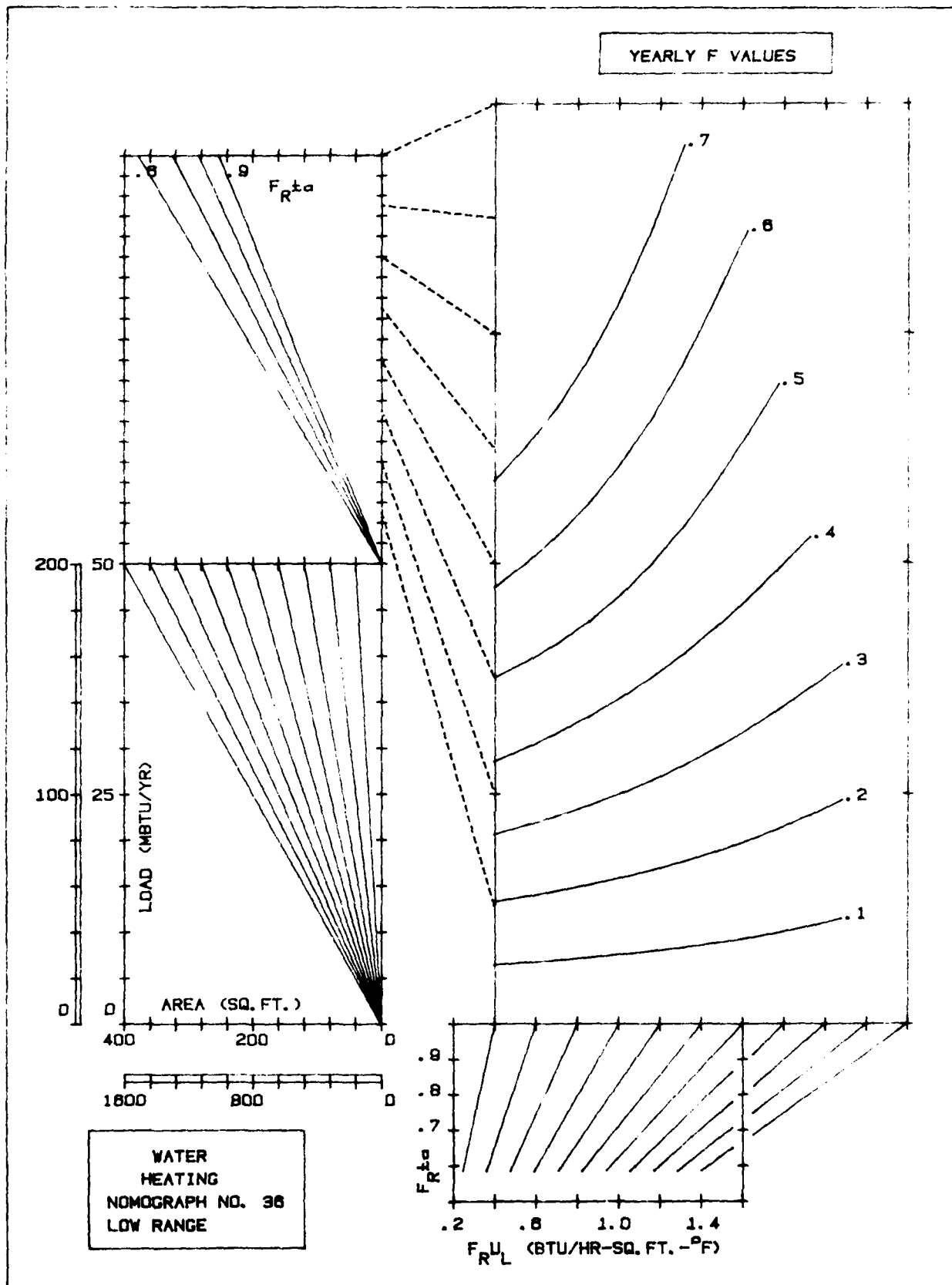
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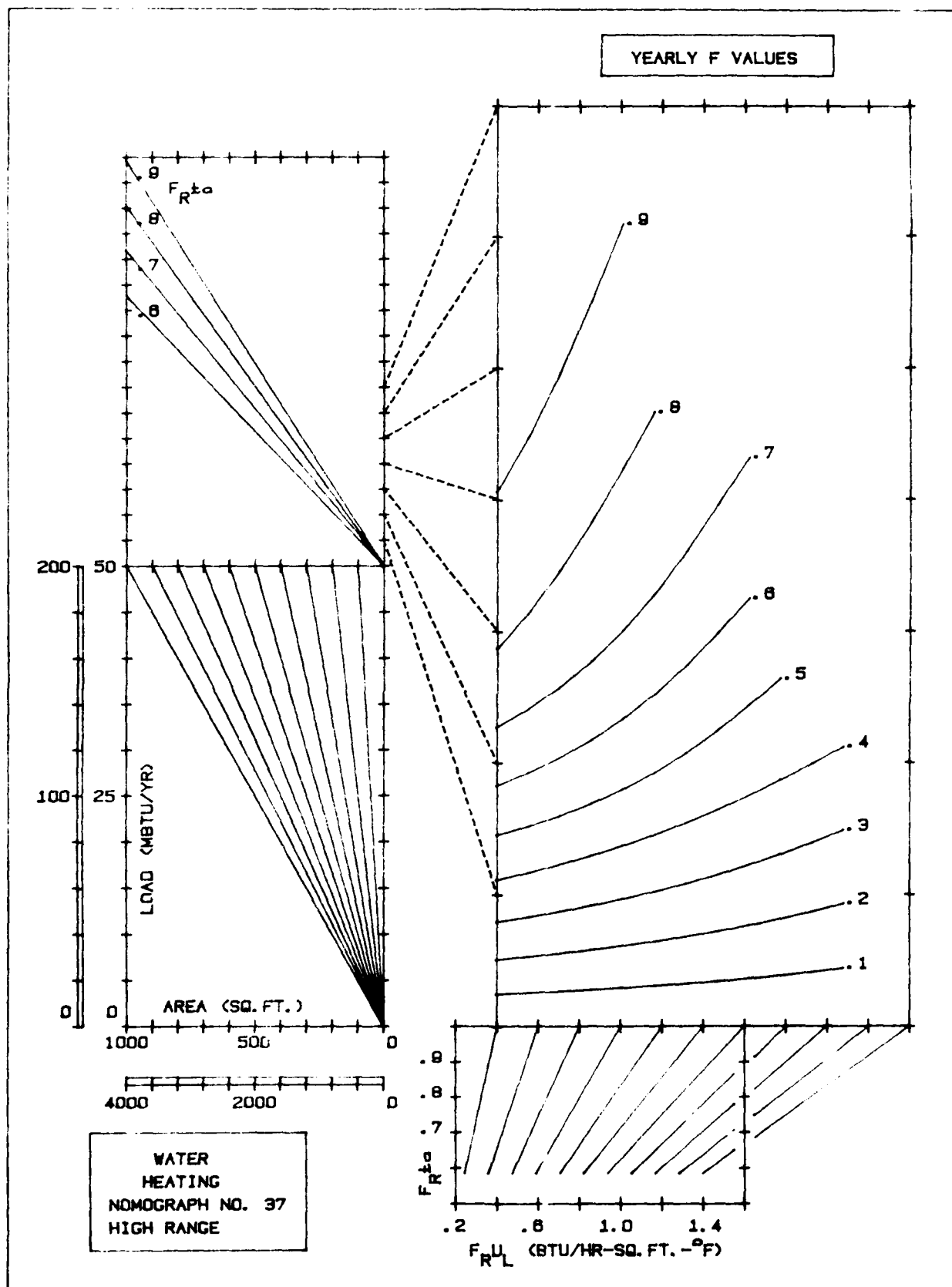
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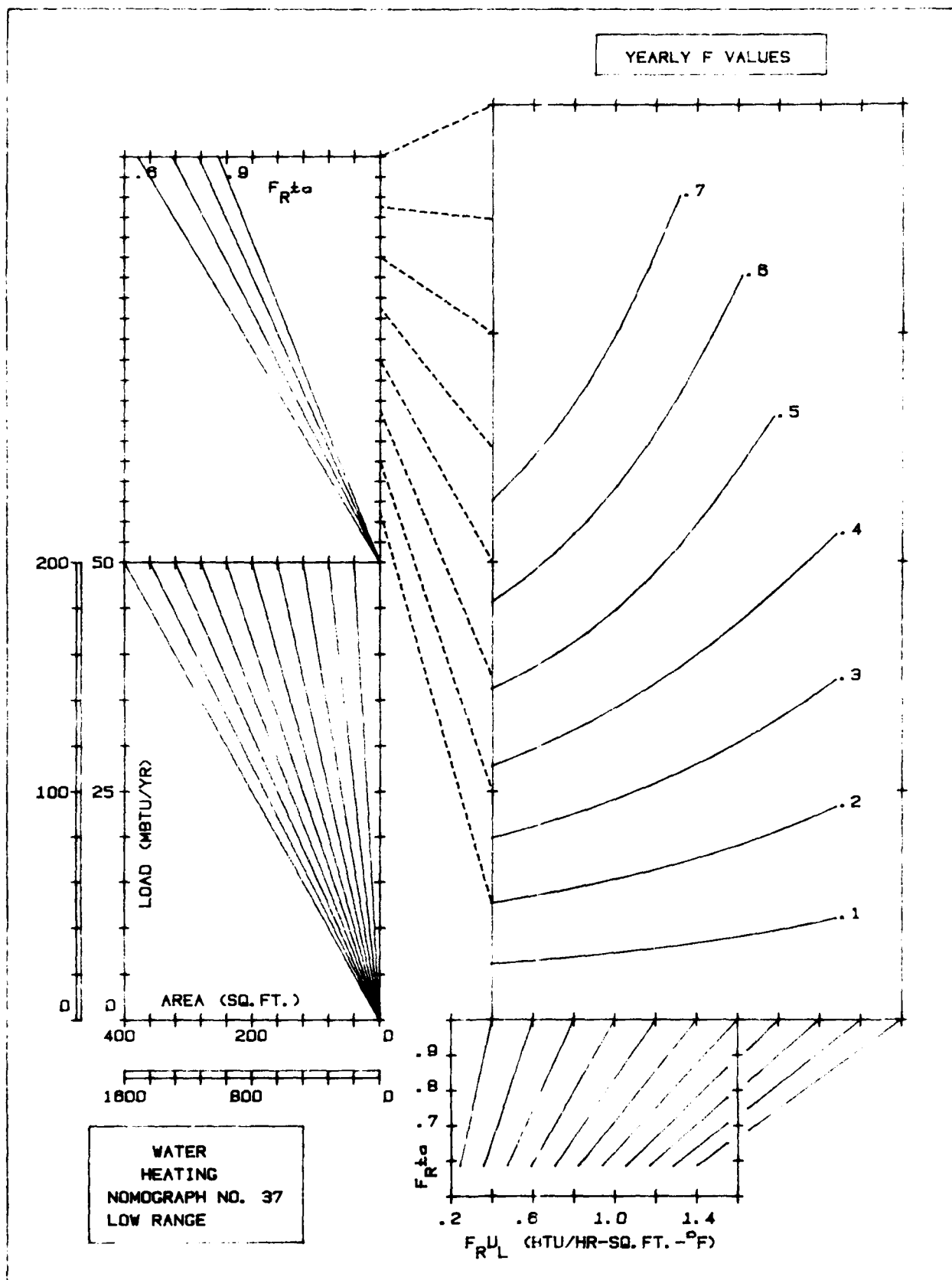
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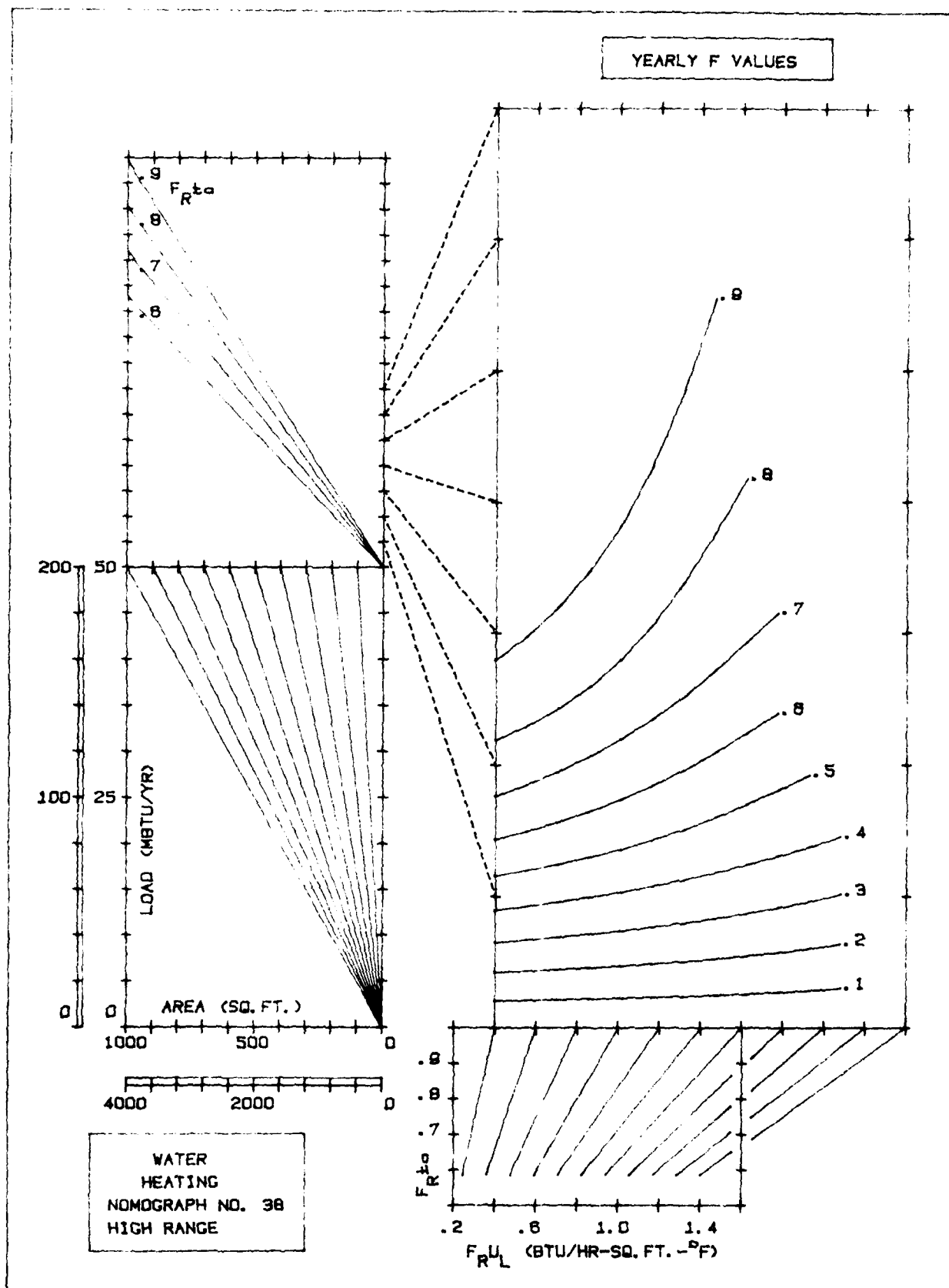


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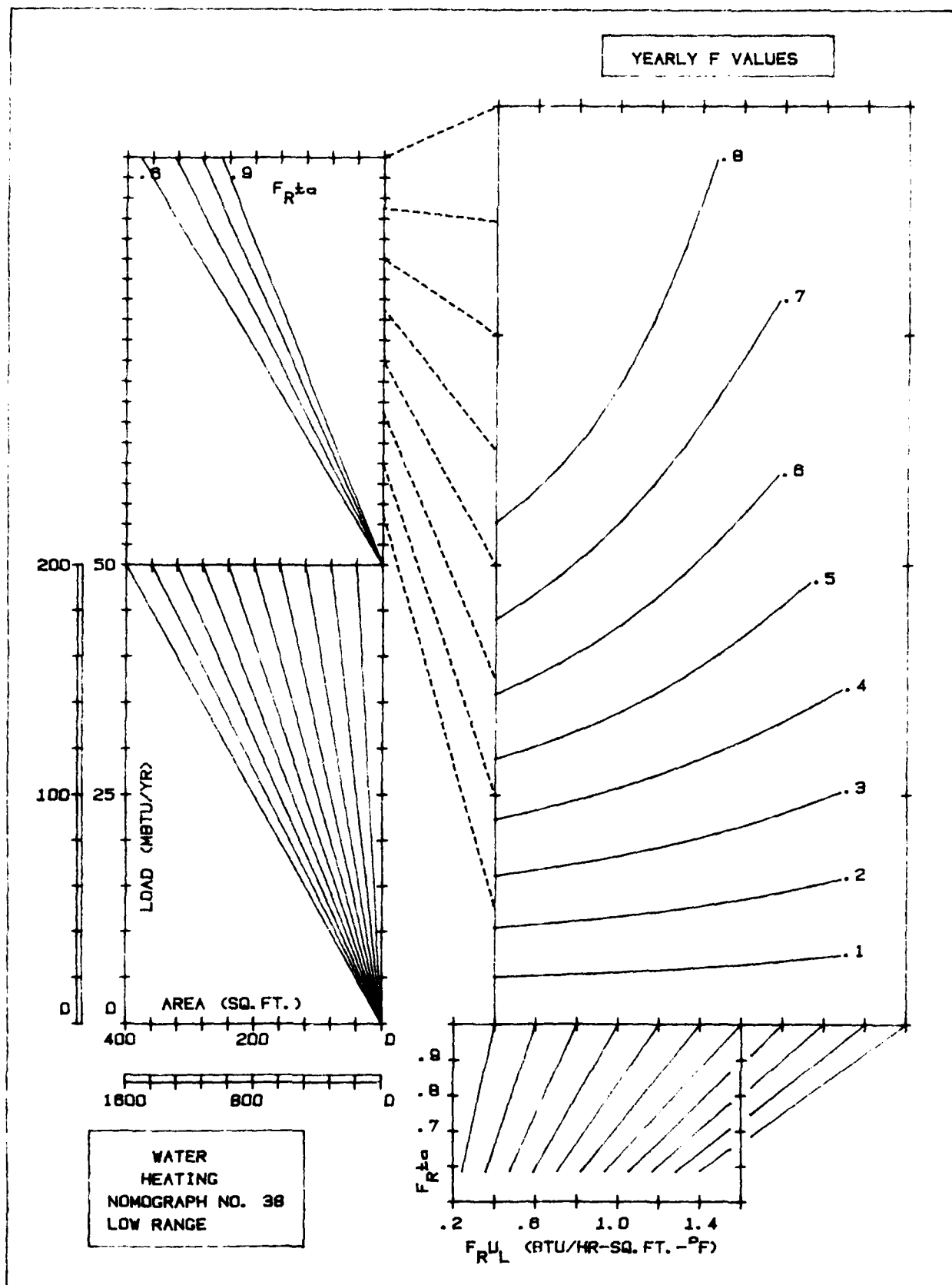


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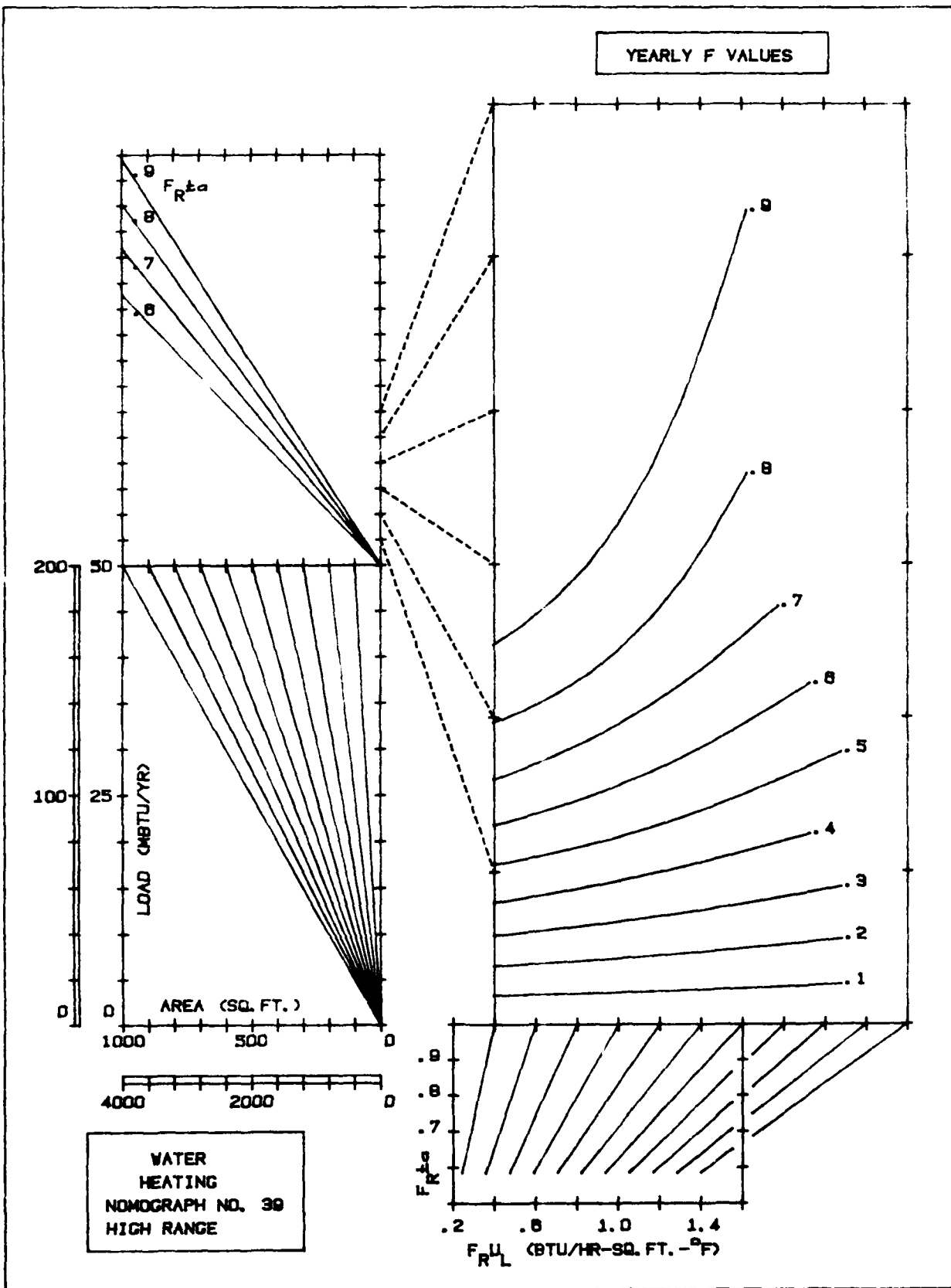
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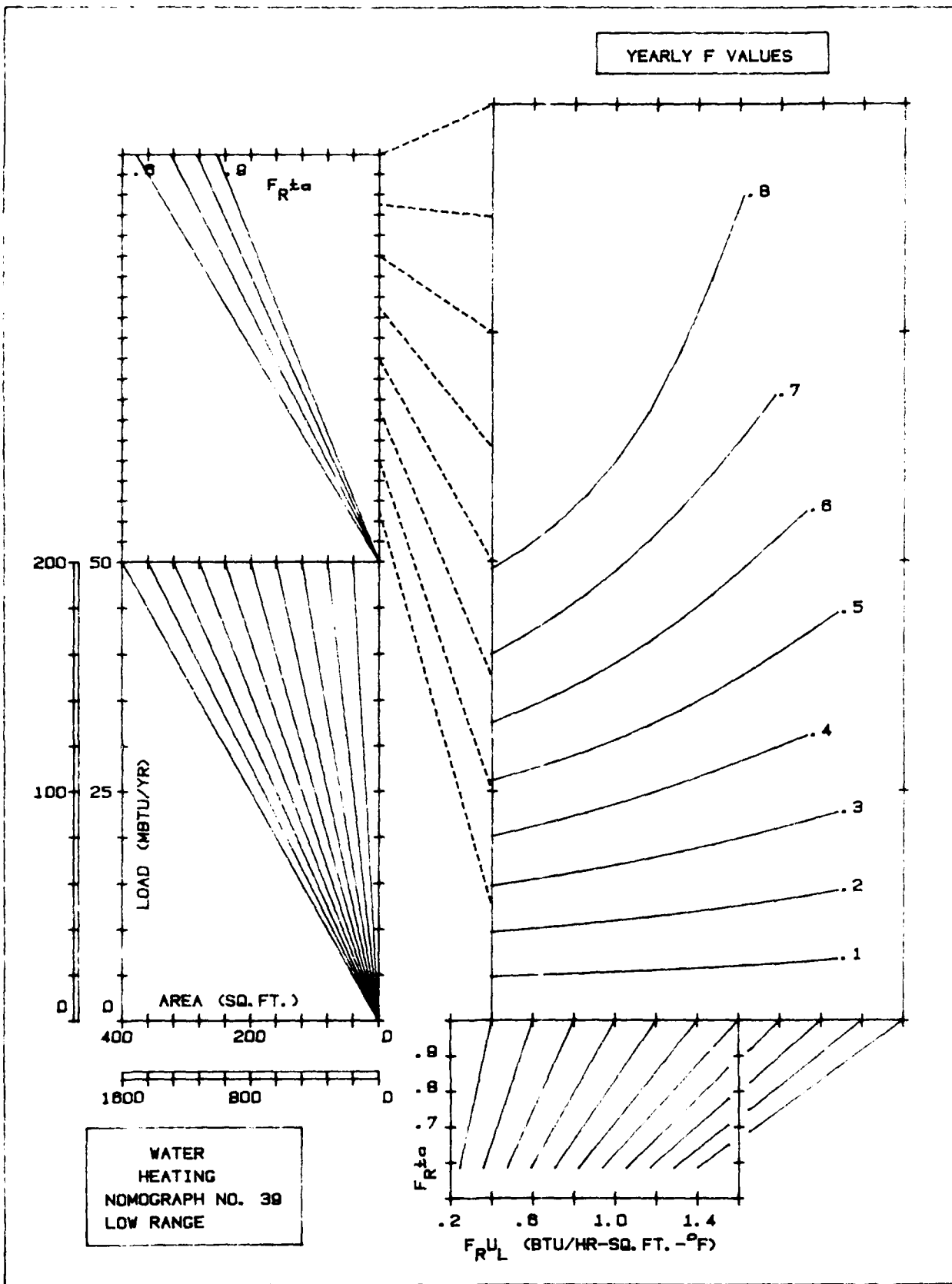
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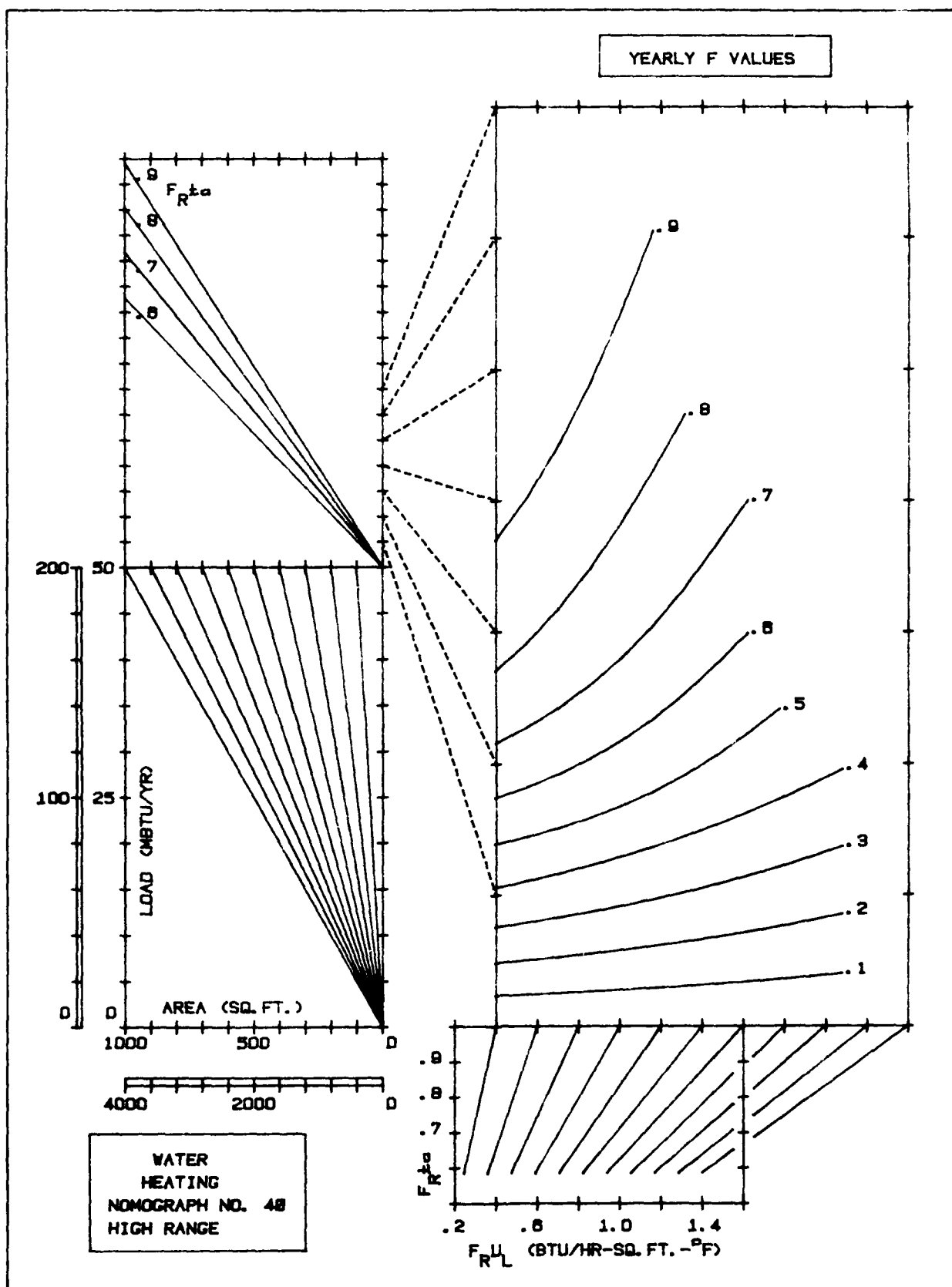
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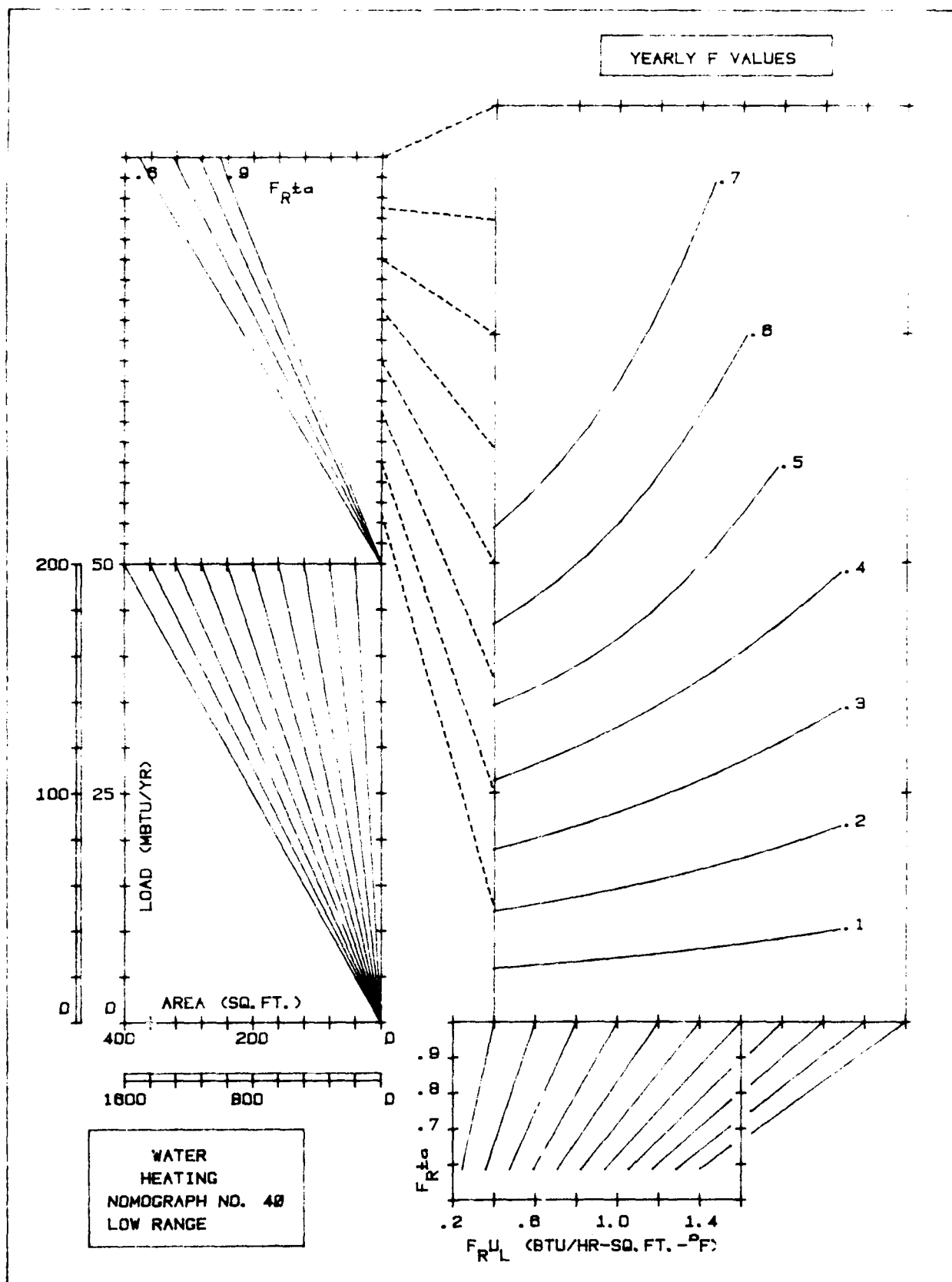
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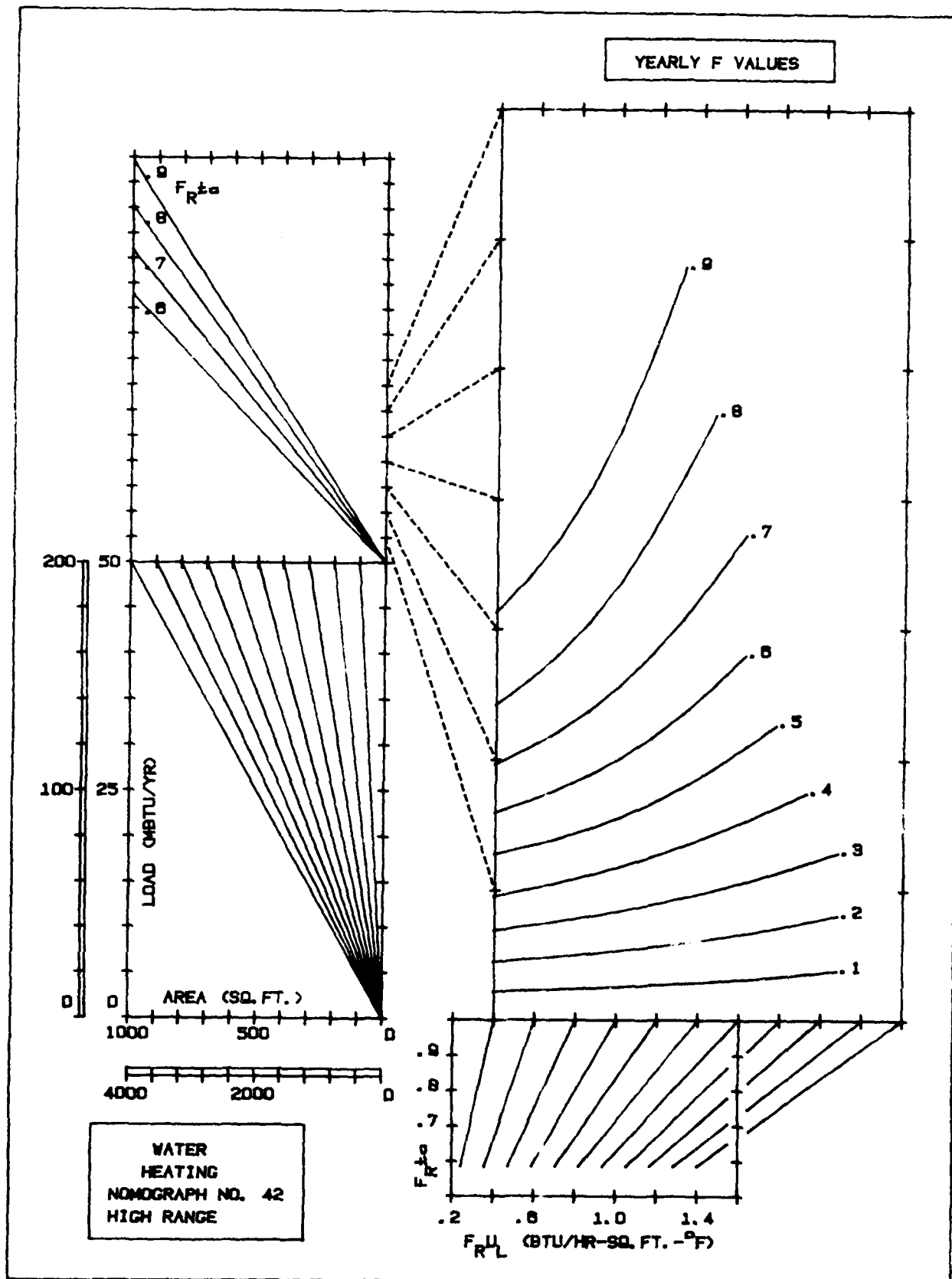
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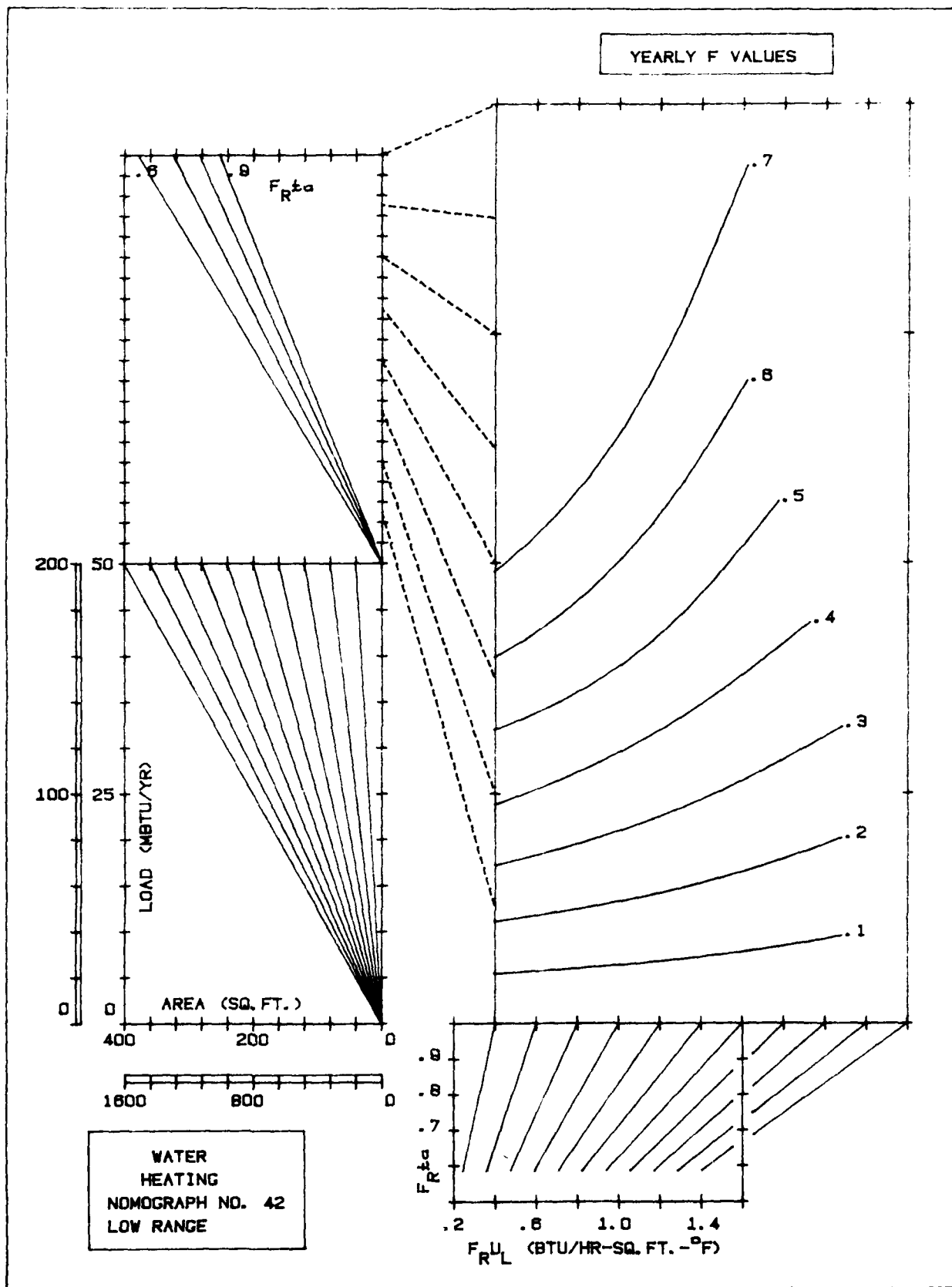
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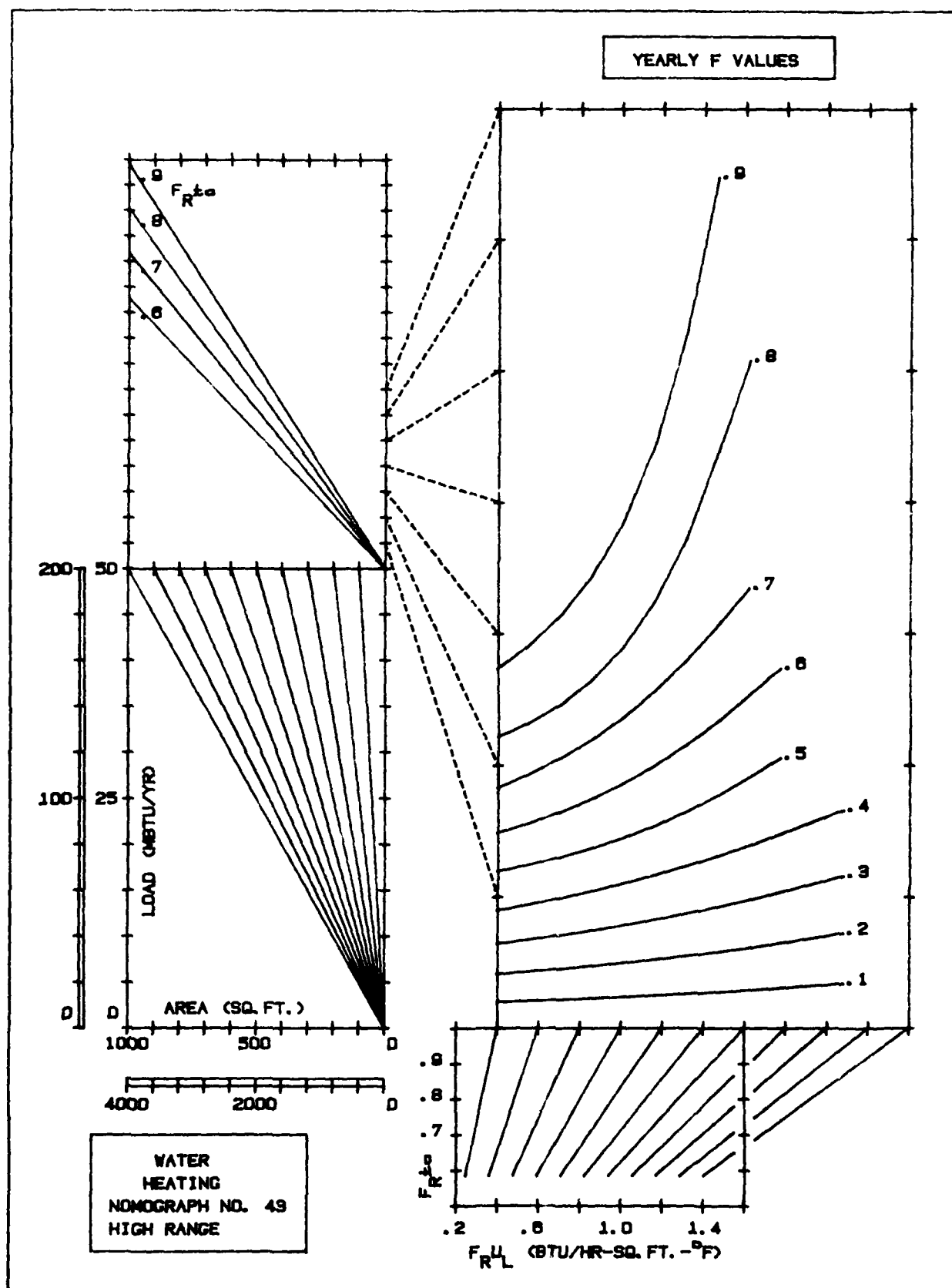
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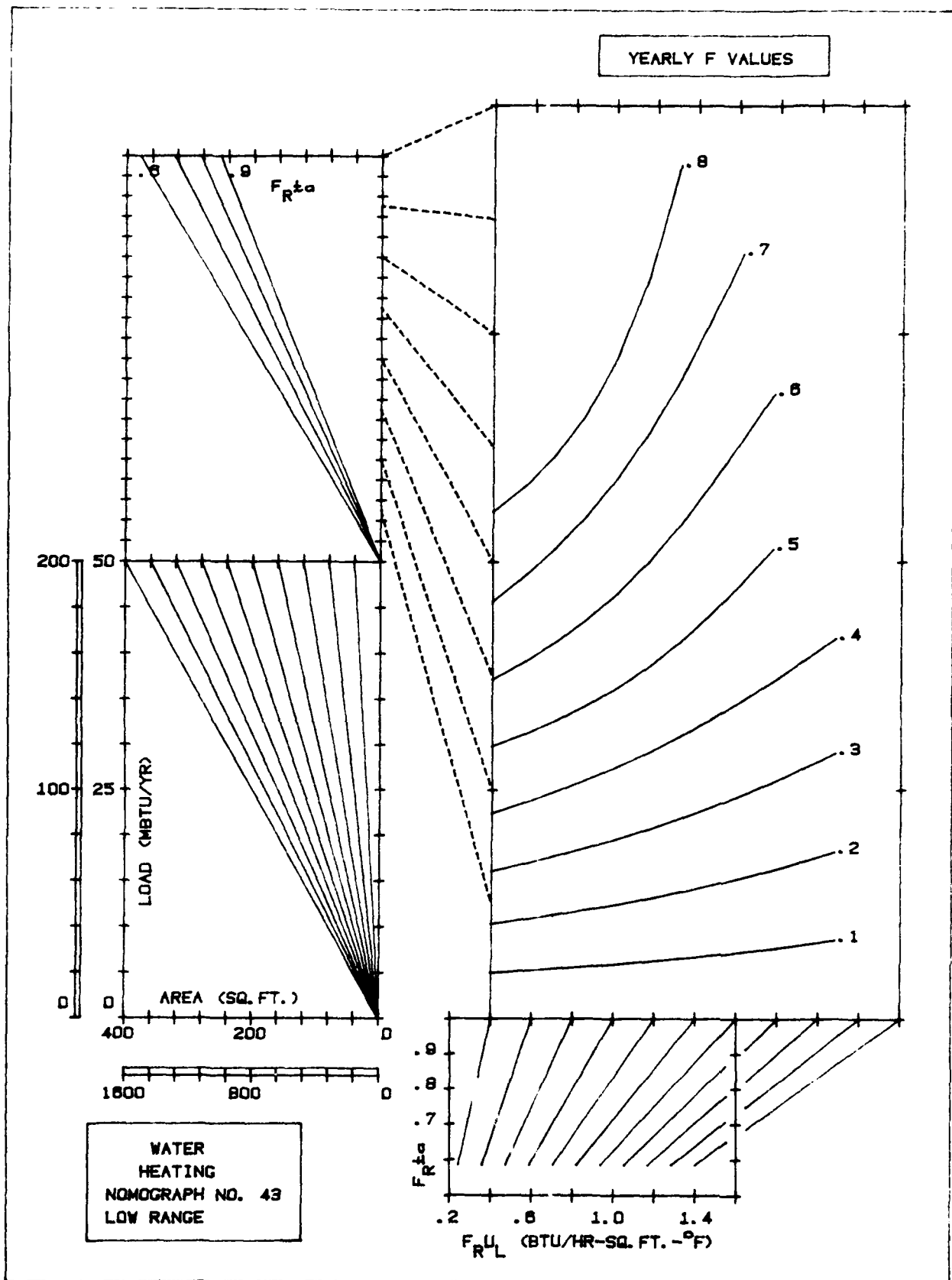
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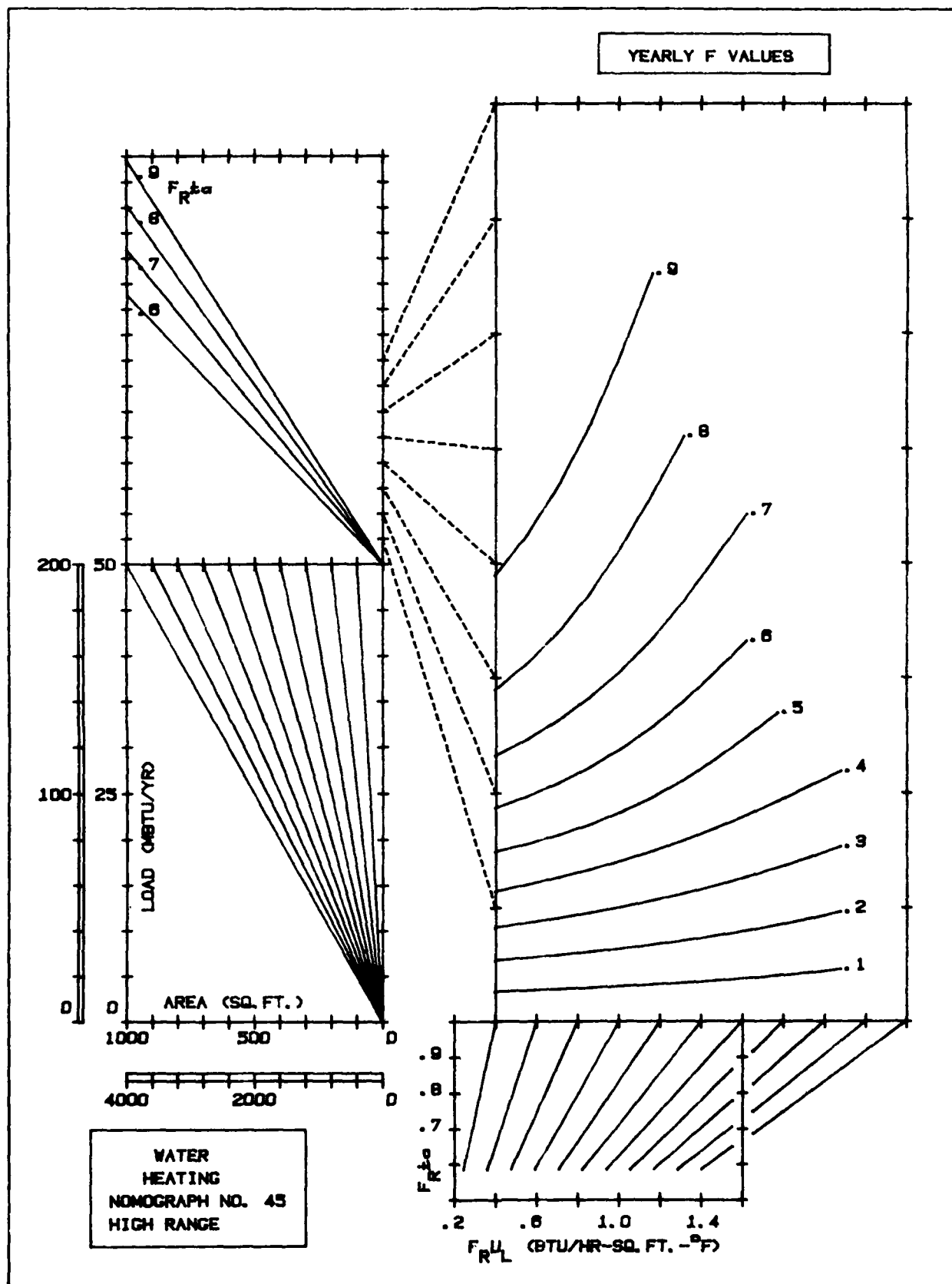
PREPARED 14 JUL 82 FOR AFESC BY USAFA/DFMS



PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

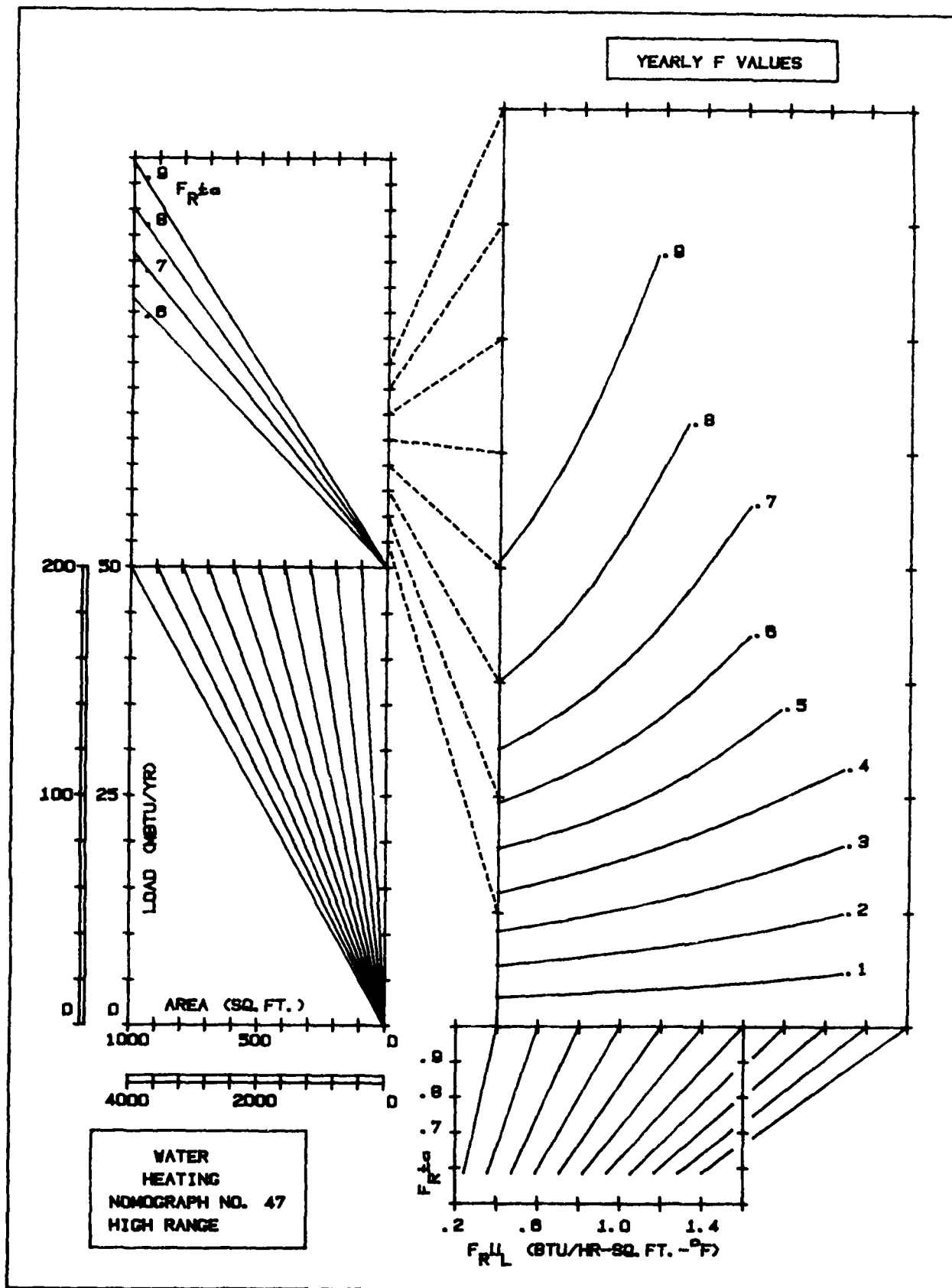


PREPARED 14 JUL 62 FOR AFESC BY USAFA/DFMS

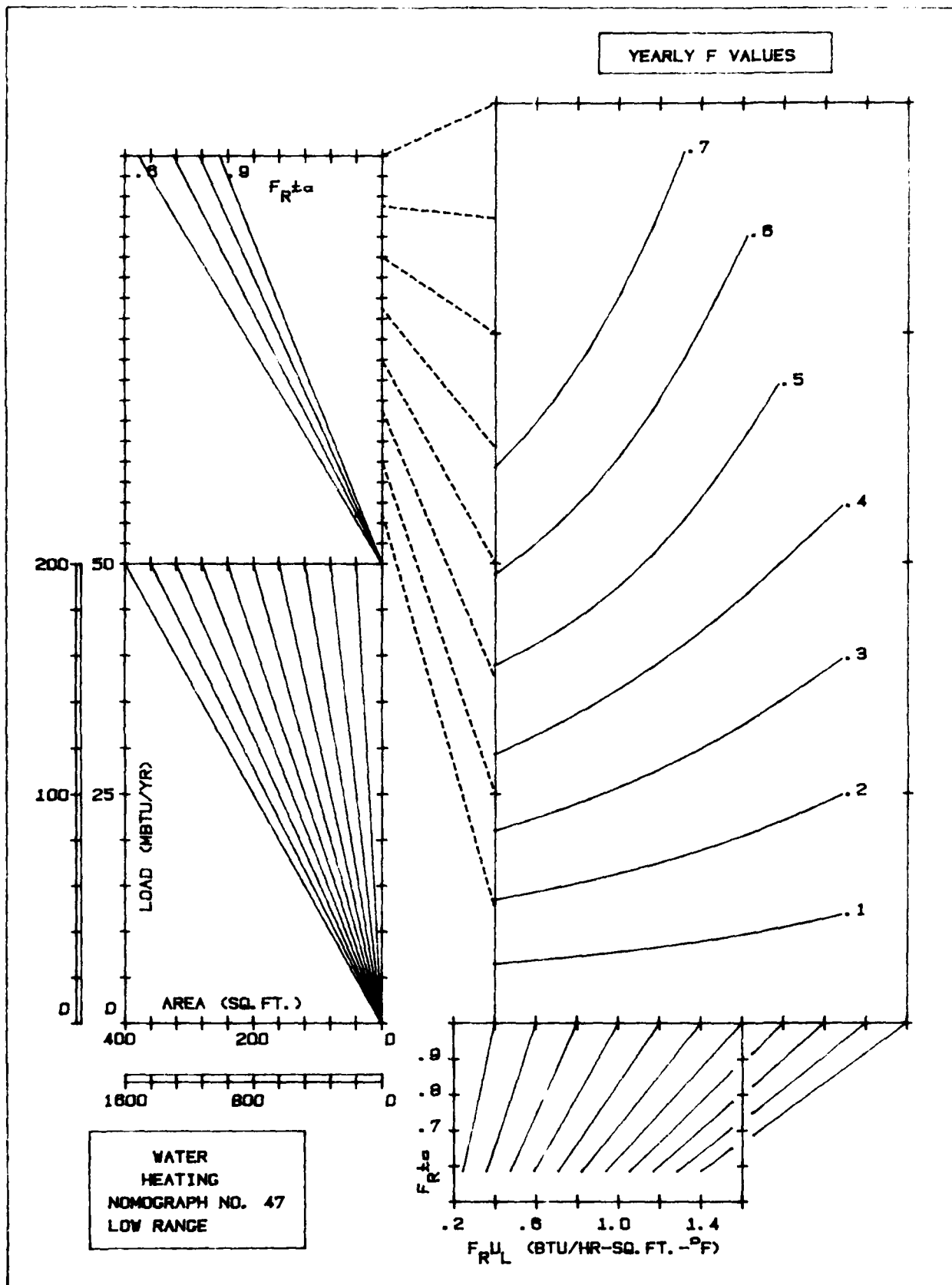


PREPARED 28 JUN 62 FOR AFESC BY USAFA/DFMS

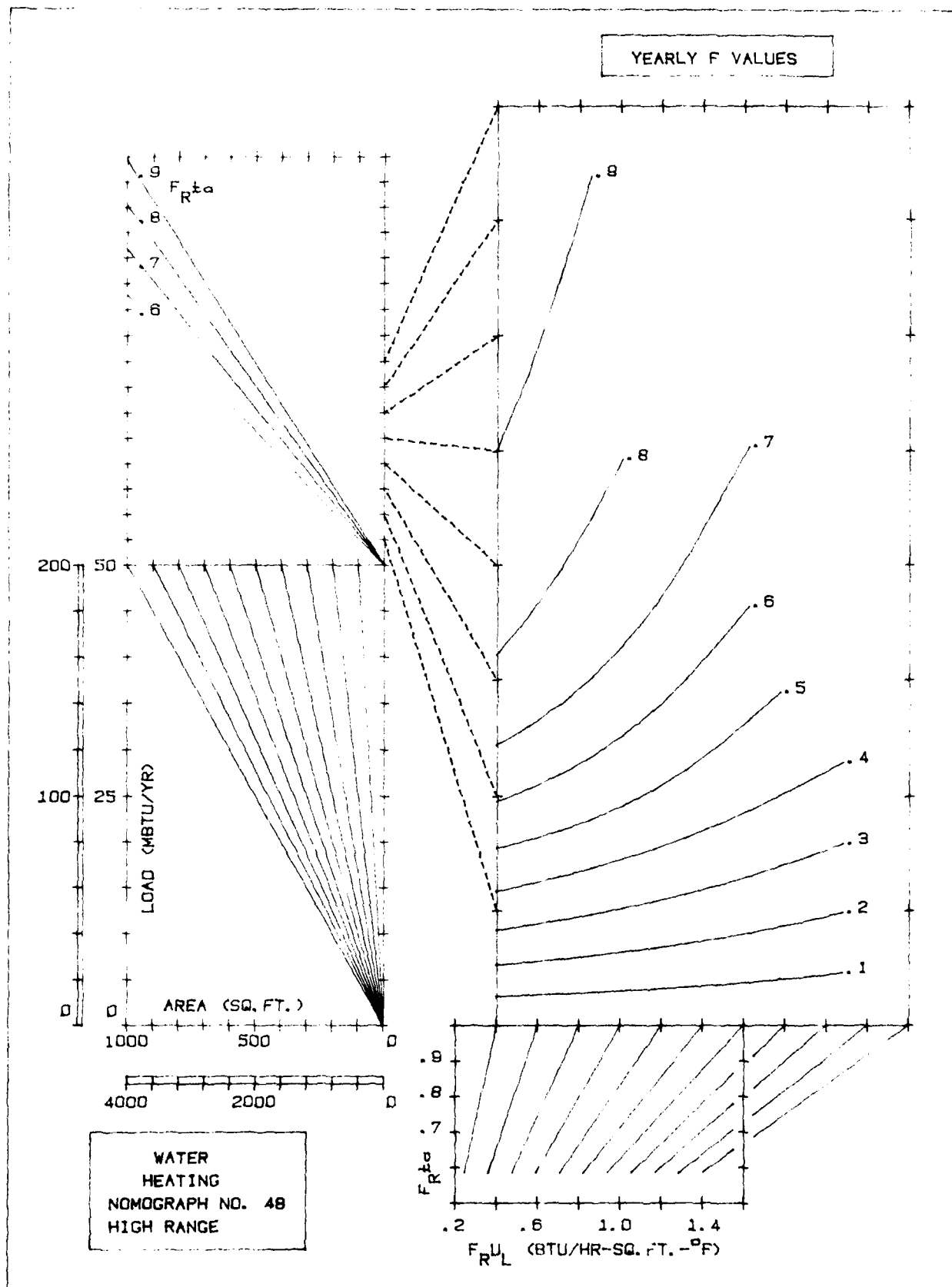
C72



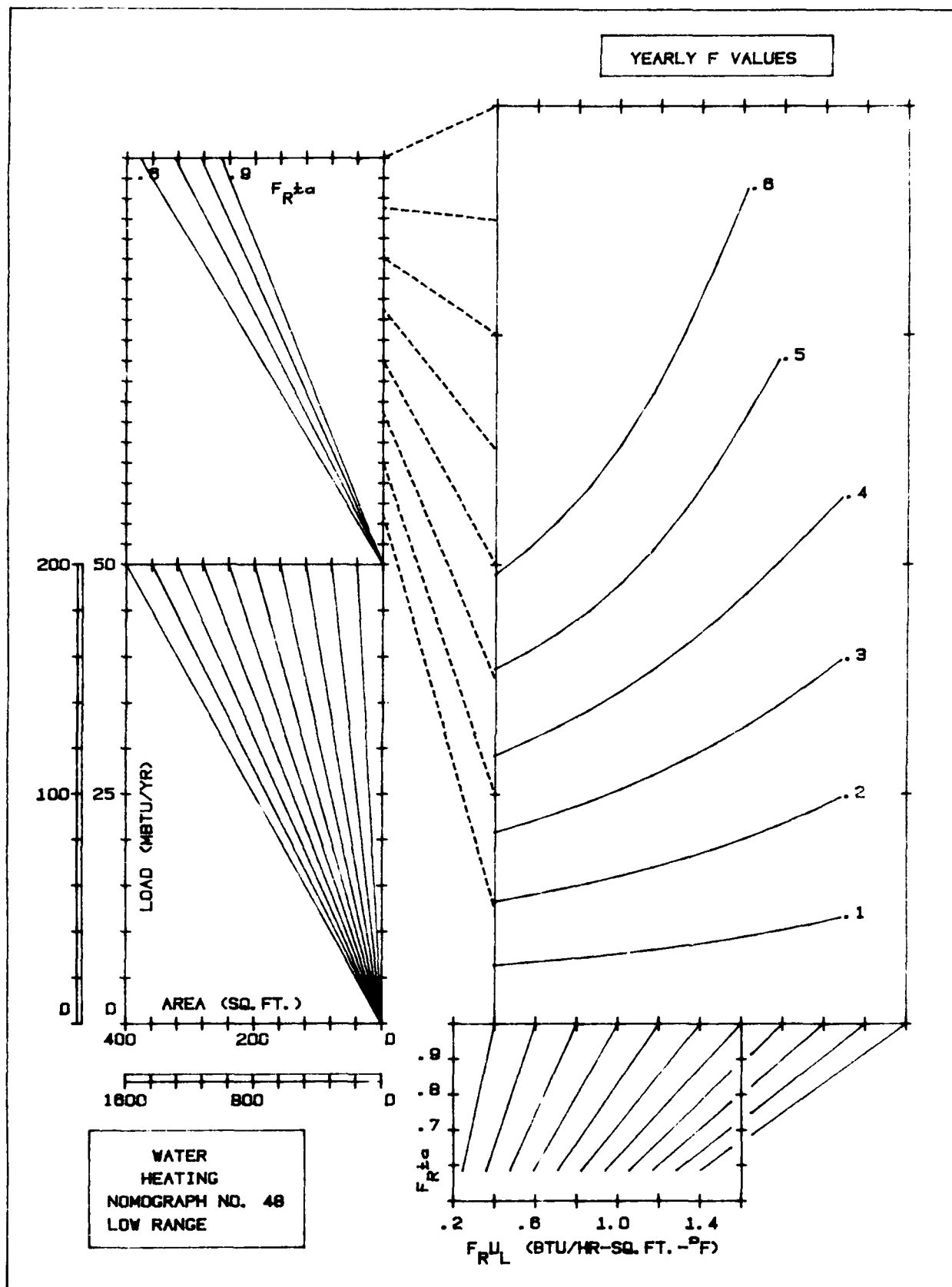
PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS



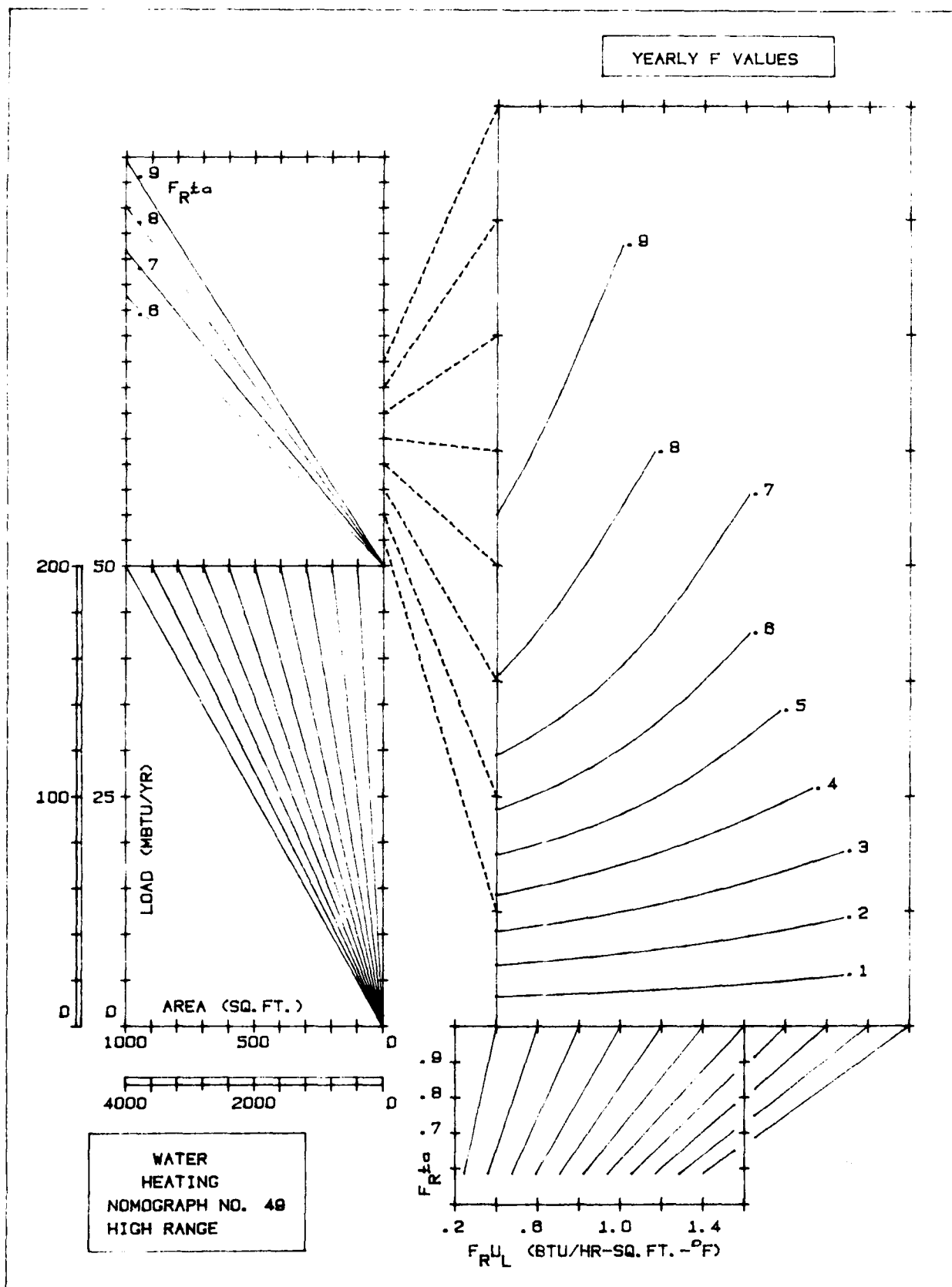
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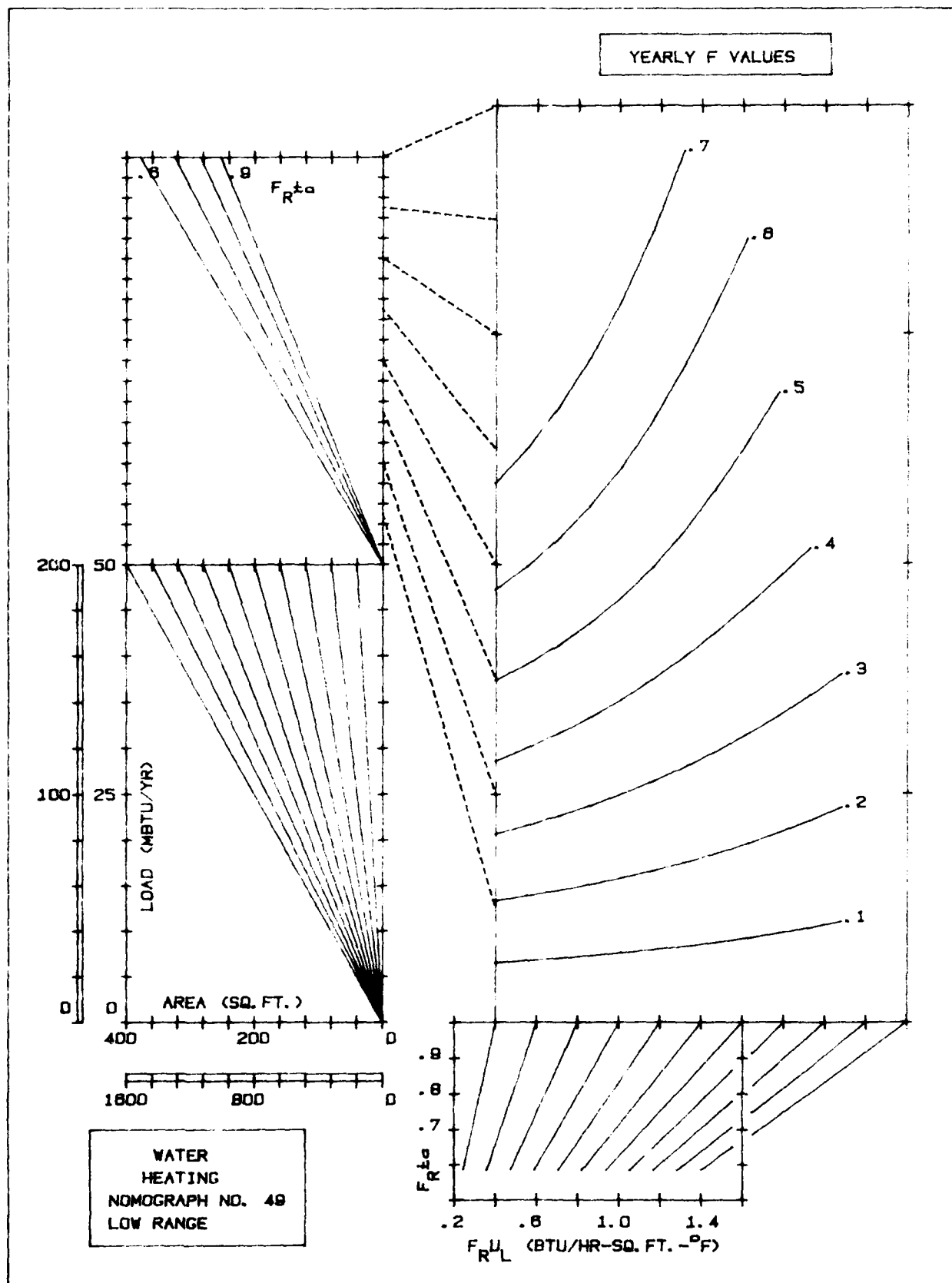


PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS



PREPARED 14 JUL 82 FOR AFESC BY USAFA/DFMS

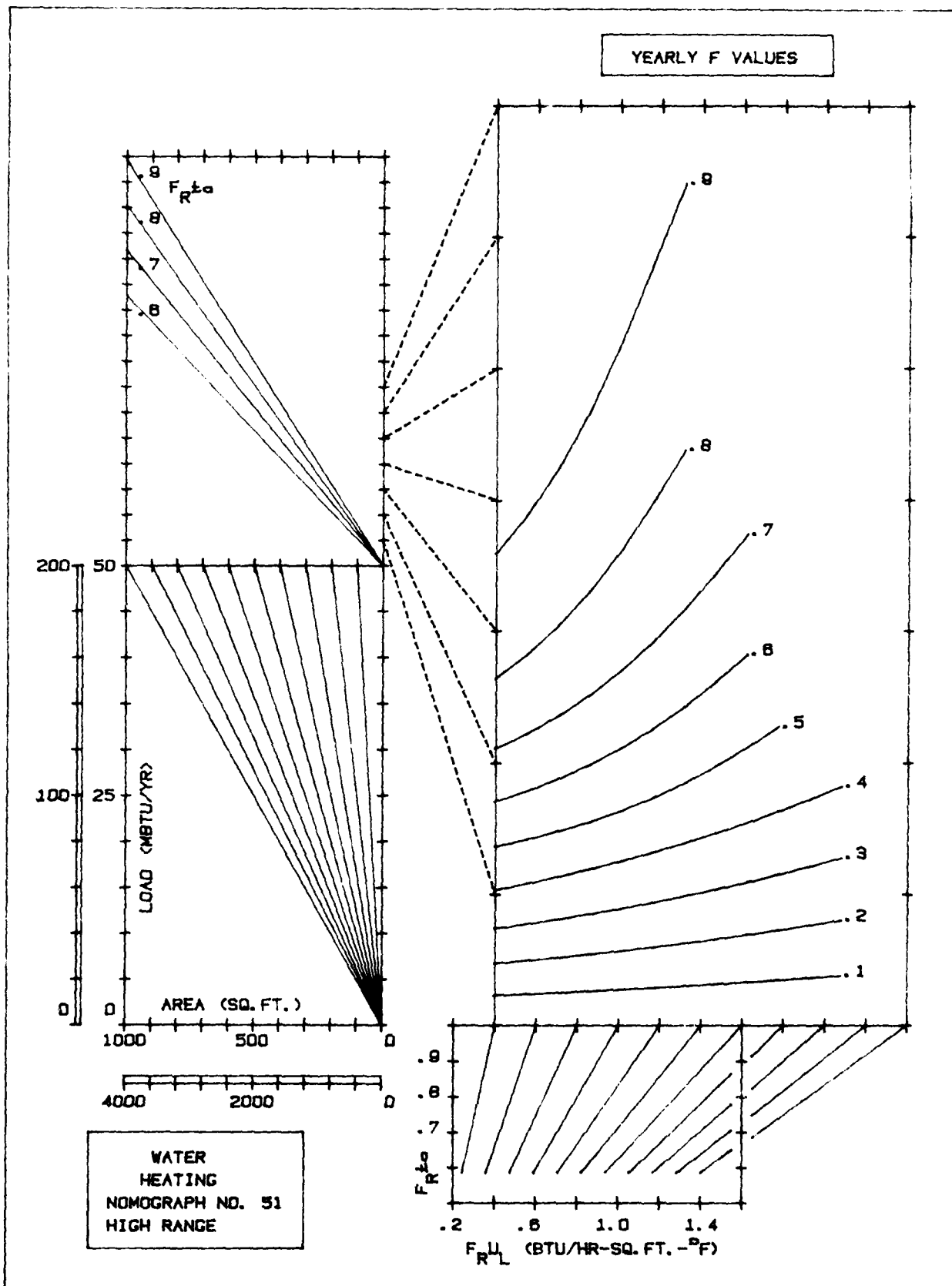




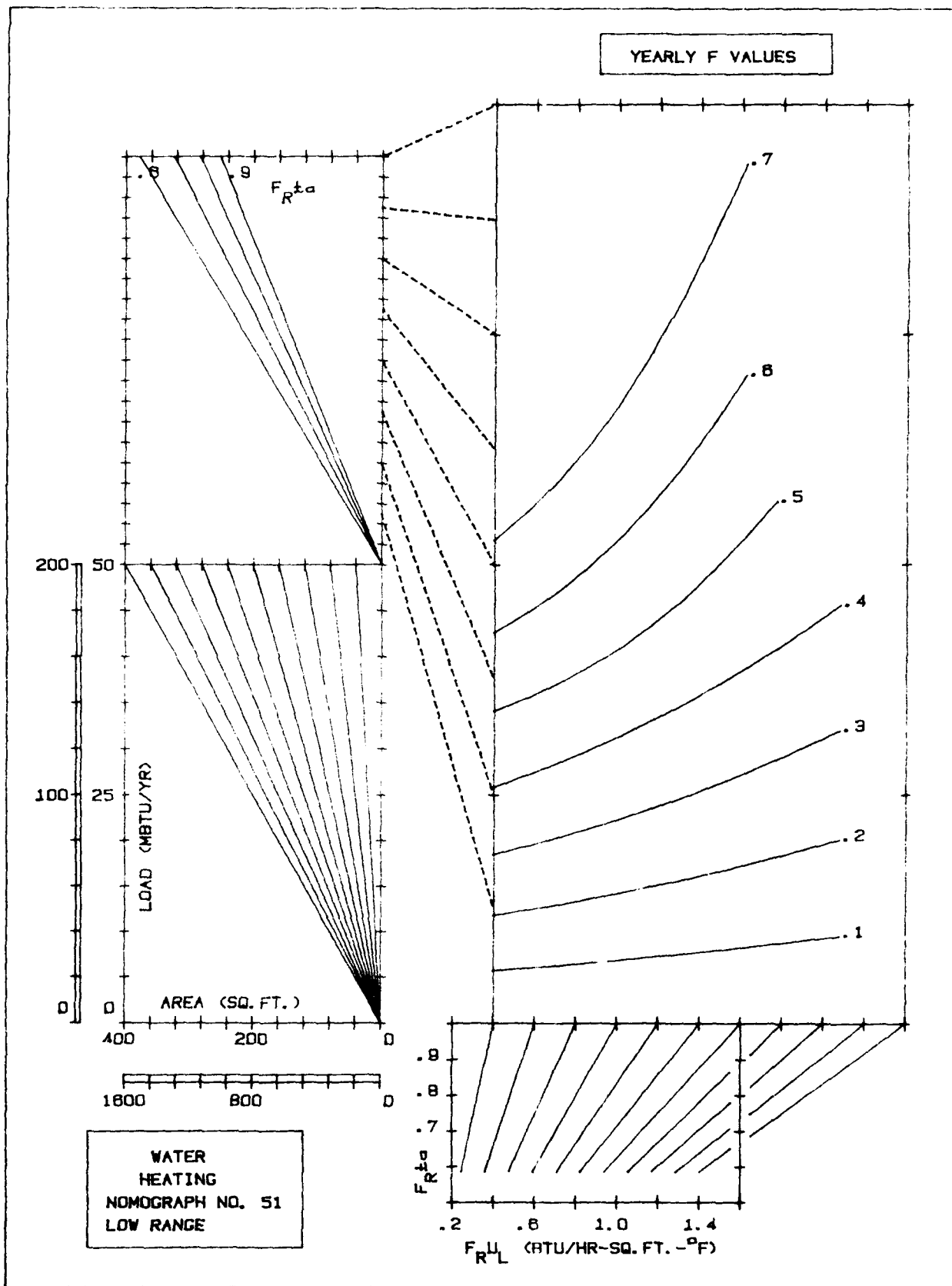
PREPARED 14 JUL 82 FOR AFESC BY USAFA/DFMS

WATER HEATING NOMOGRAPH NO. 50,
HIGH RANGE, NOT USABLE

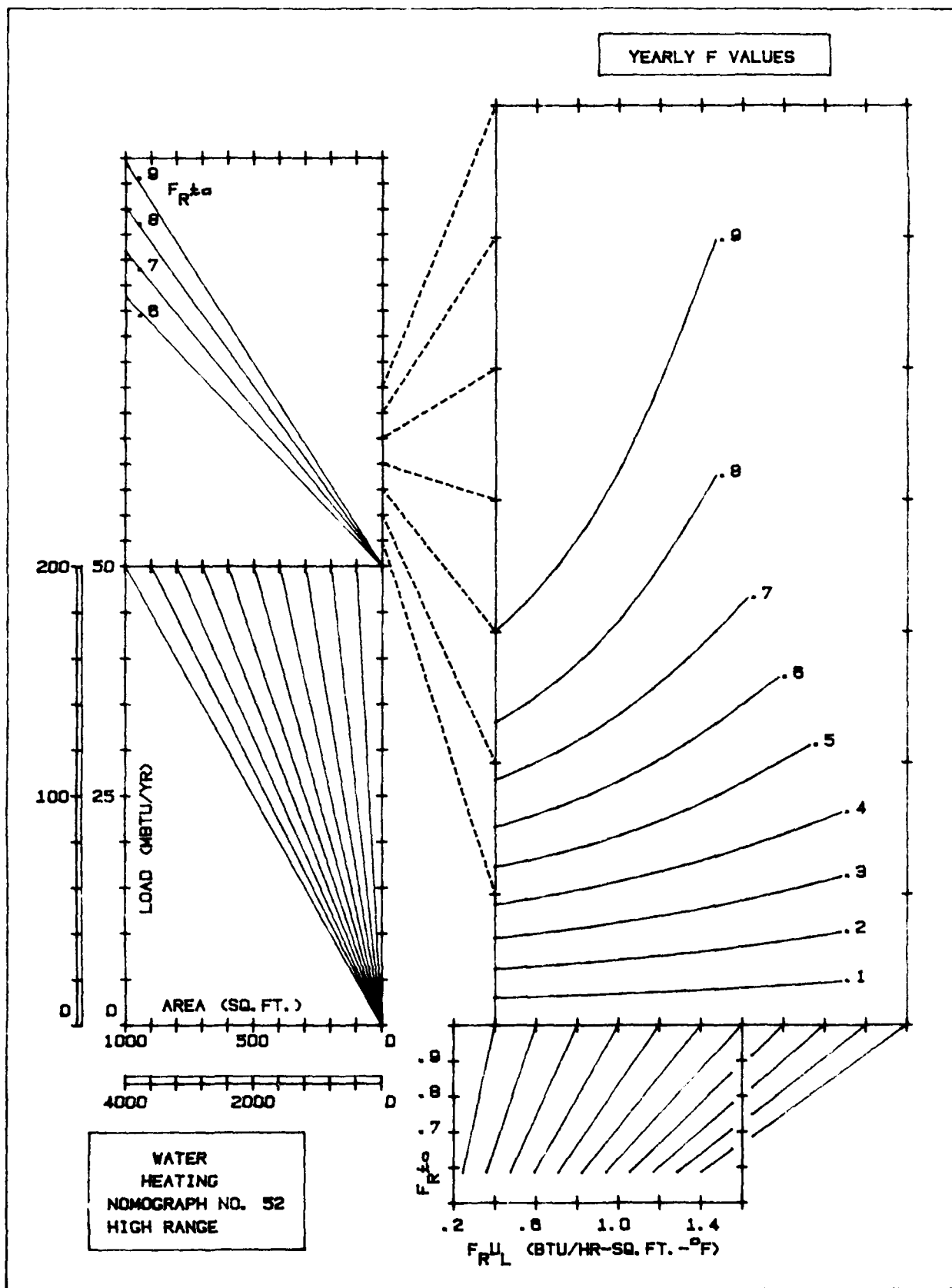
C80



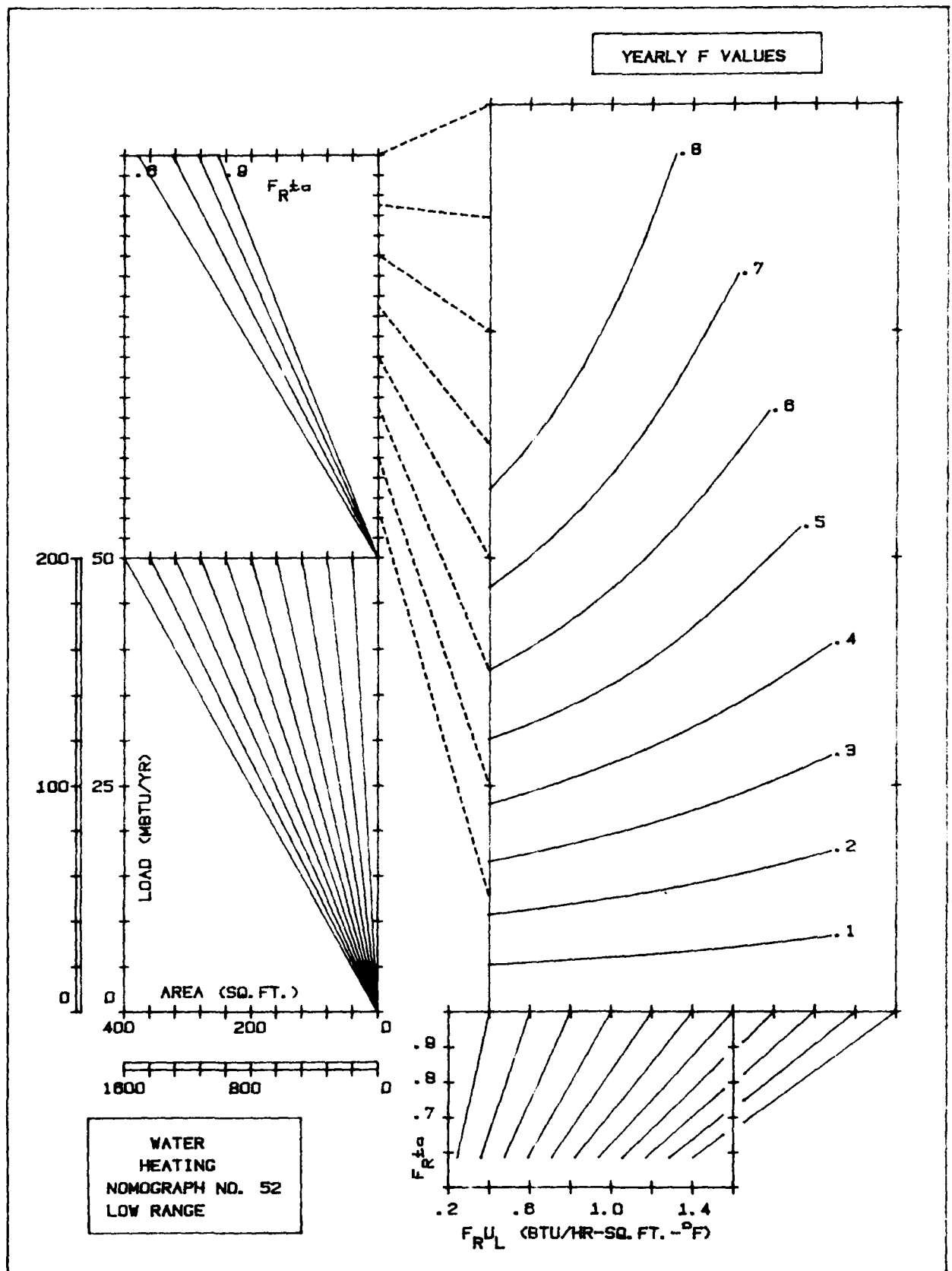
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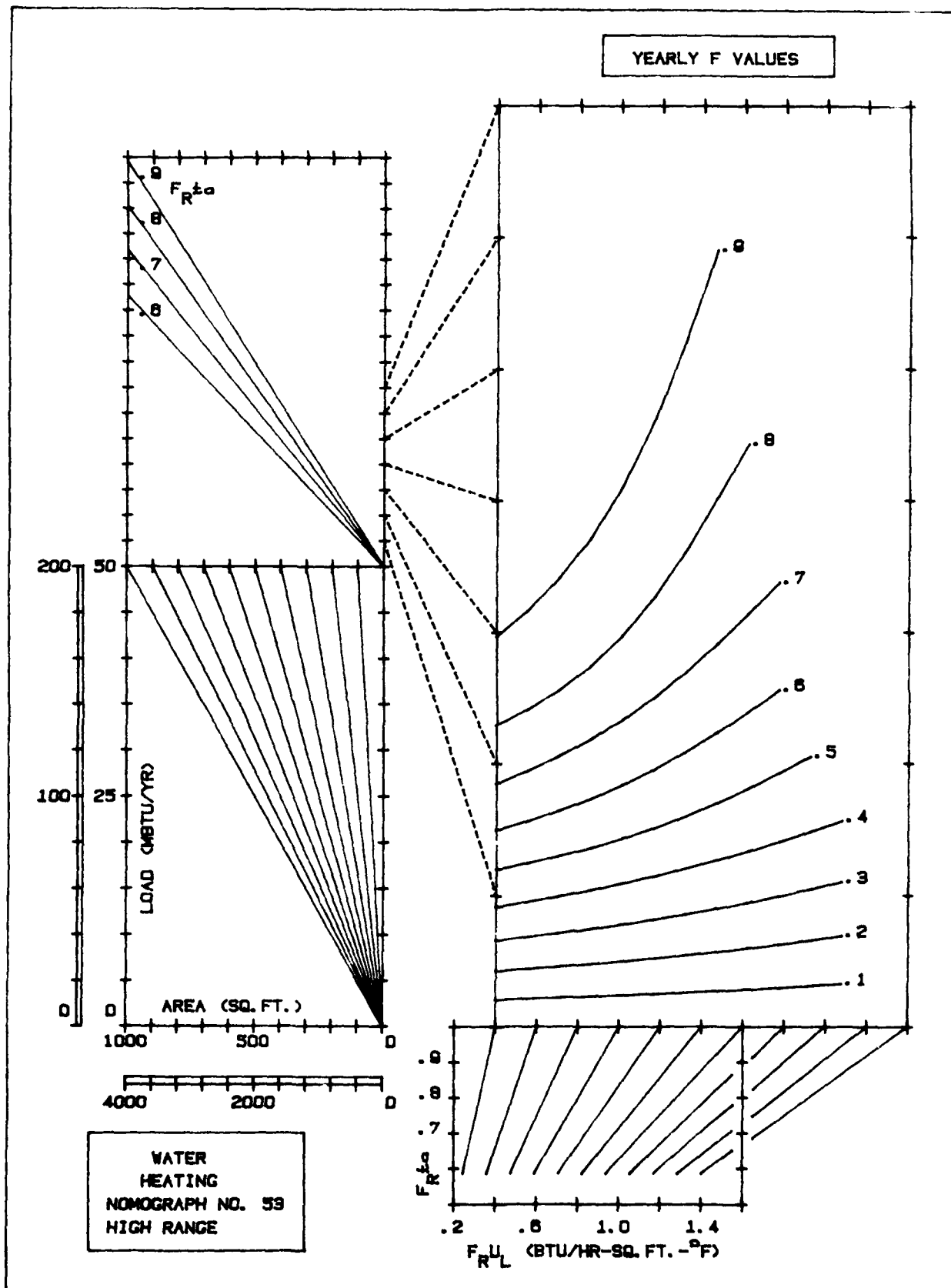
PREPARED 14 JUL 82 FOR AFESC BY USAFA/DFMS



PREPARED 20 JUN 62 FOR AFESC BY USAFA/DFMS

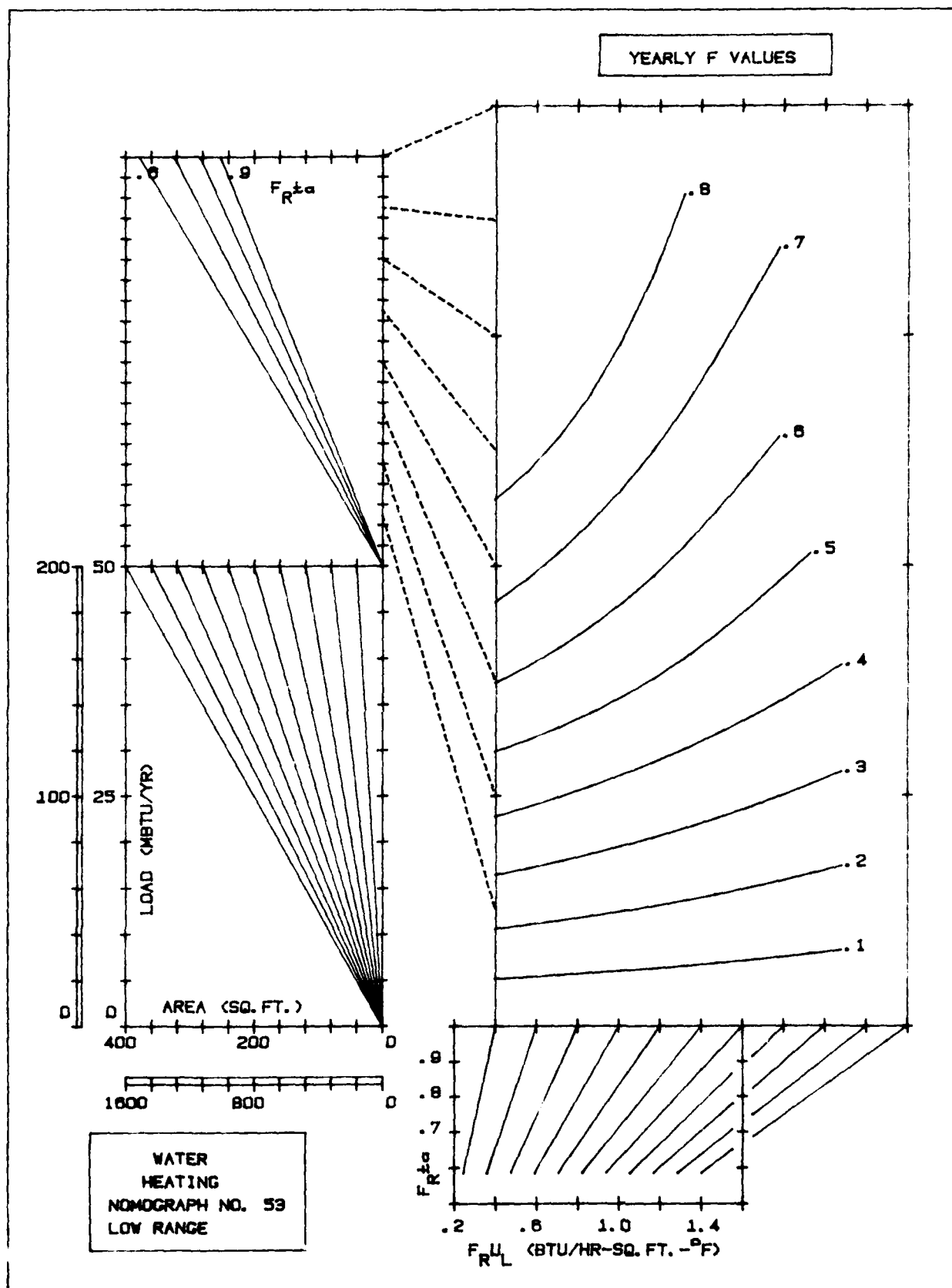


PREPARED 14 JUL 82 FOR AFESC BY USAFA/DFMS



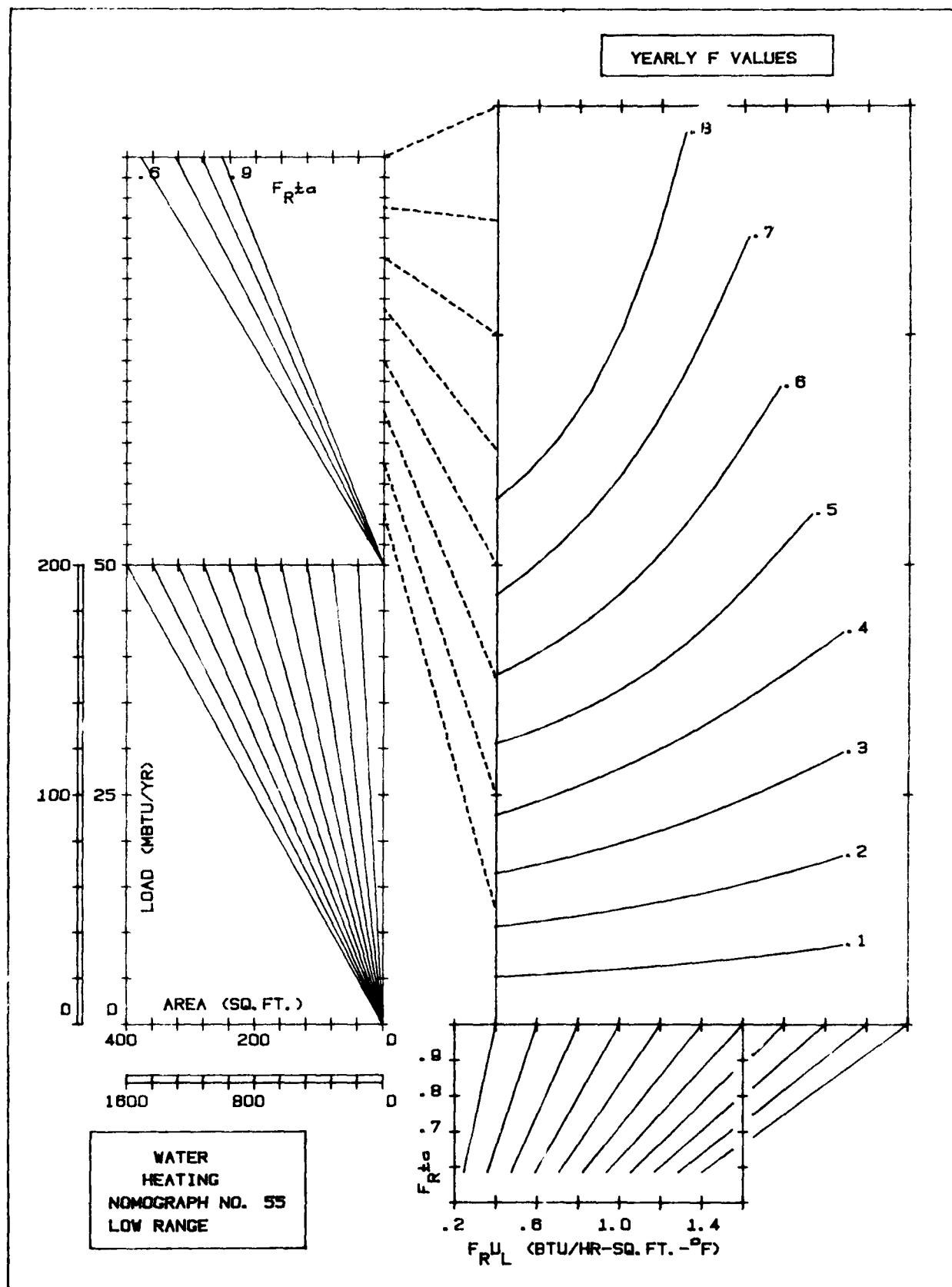
PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

C85

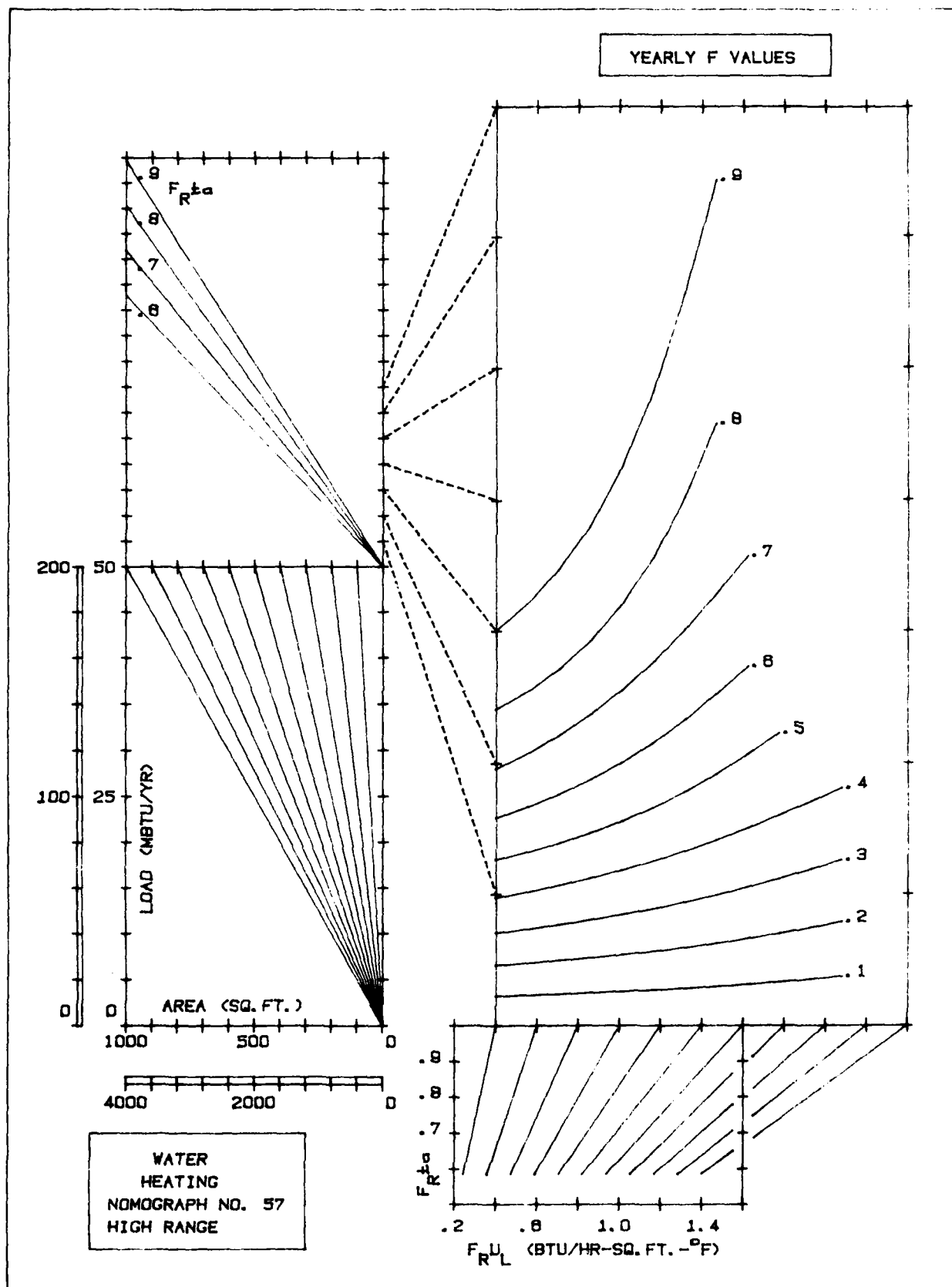


PREPARED 15 JUL 62 FOR AFESC BY USAFA/DFMS

C87

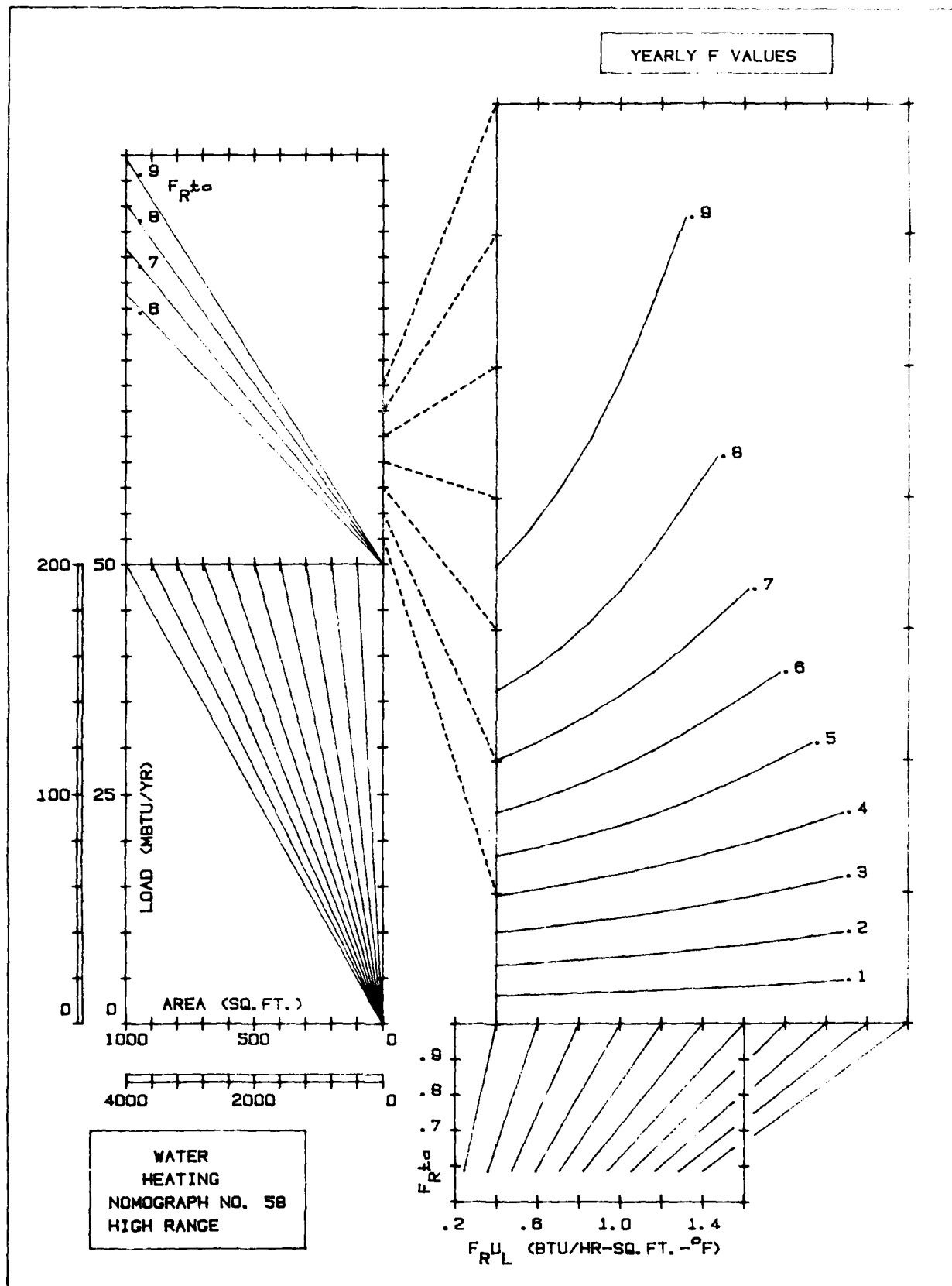


PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

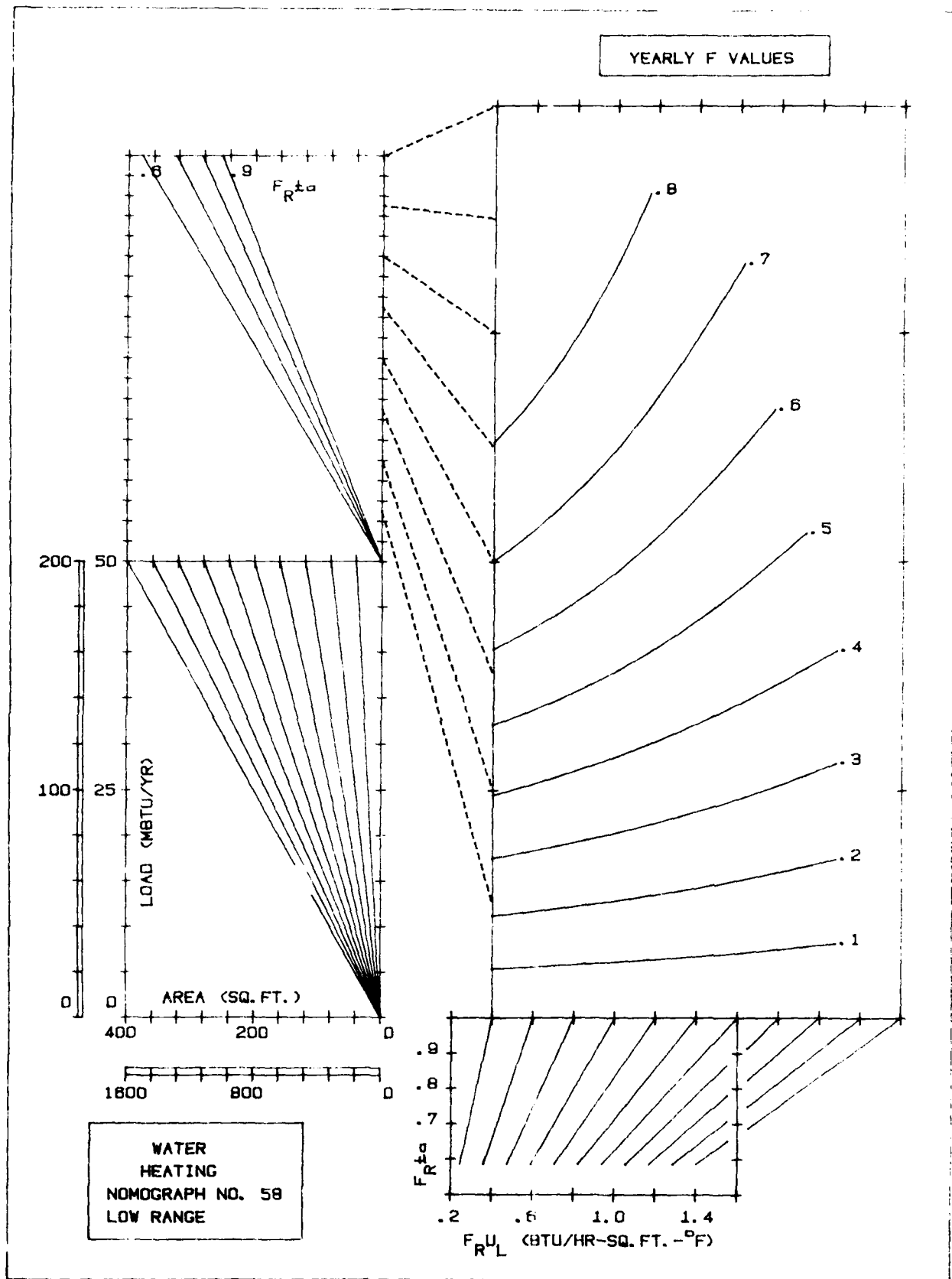


PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

C90



PREPARED 28 JUN 62 FOR AFESC BY USAFA/DFMS



PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

ca3

AD-A120 013

AIR FORCE ACADEMY CO

F/G 13/1

SIMPLIFIED SOLAR FRACTION ESTIMATION FOR SPACE AND WATER HEATIN--ETC(U)

SEP 82 N S PACHECO, D G KNIOLA, J F SHEEDY

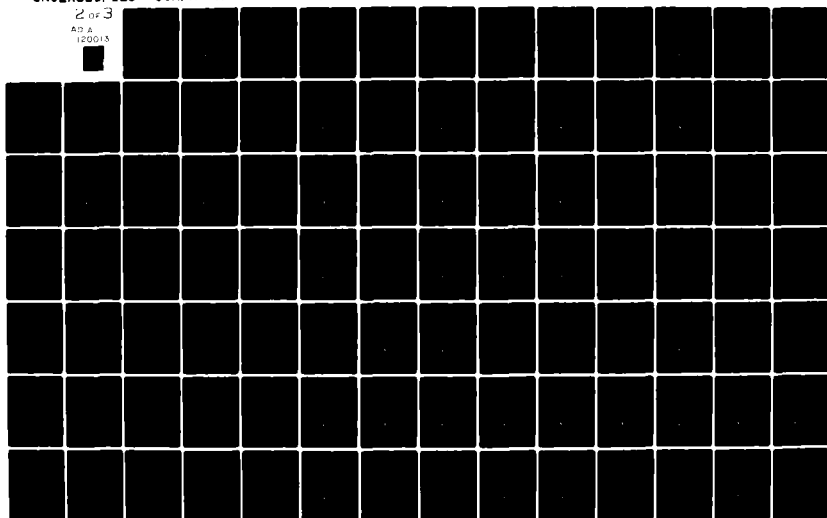
UNCLASSIFIED

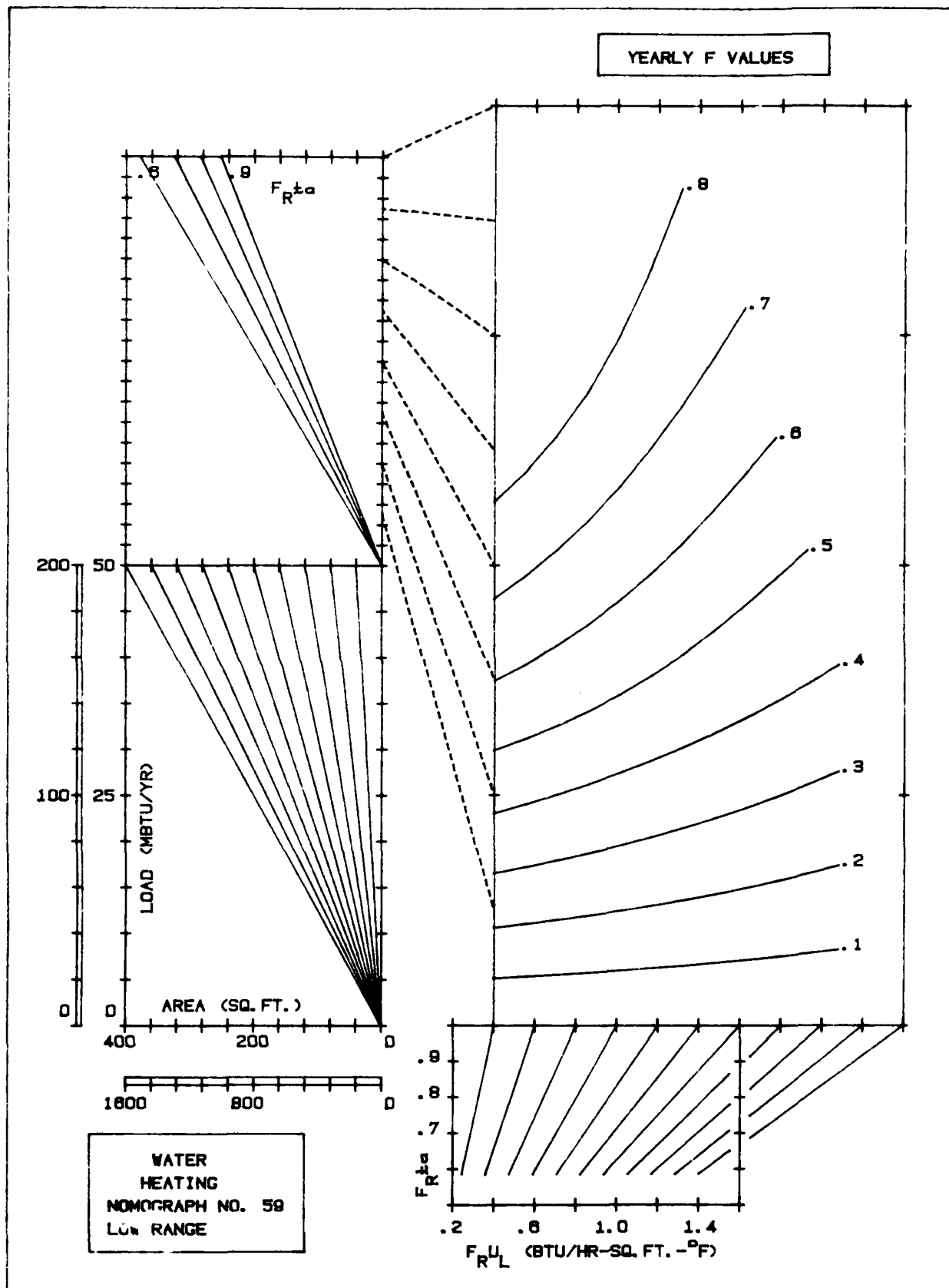
USAF-TR-82-6-APP-B

NL

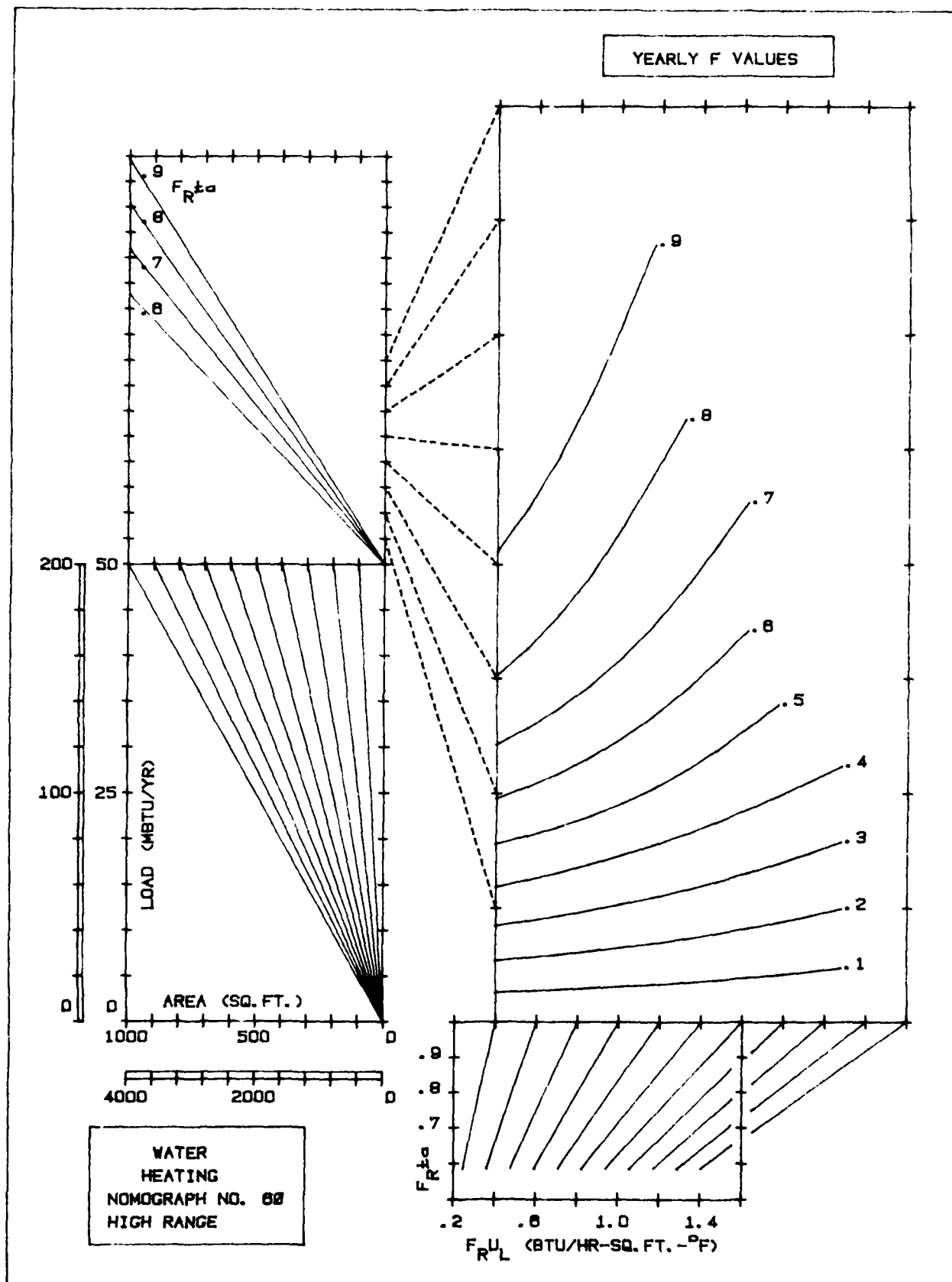
2 of 3

AD A
120013

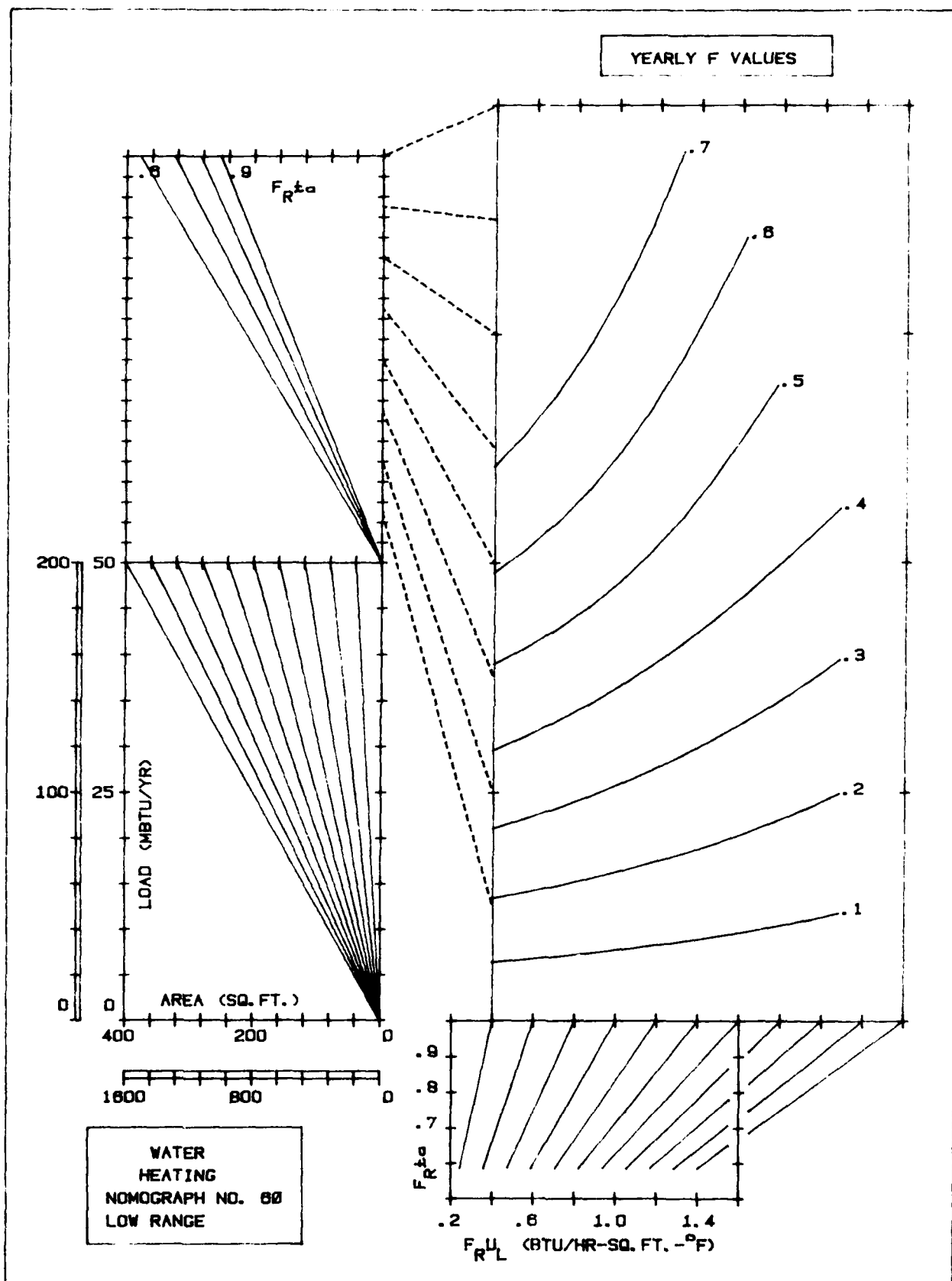




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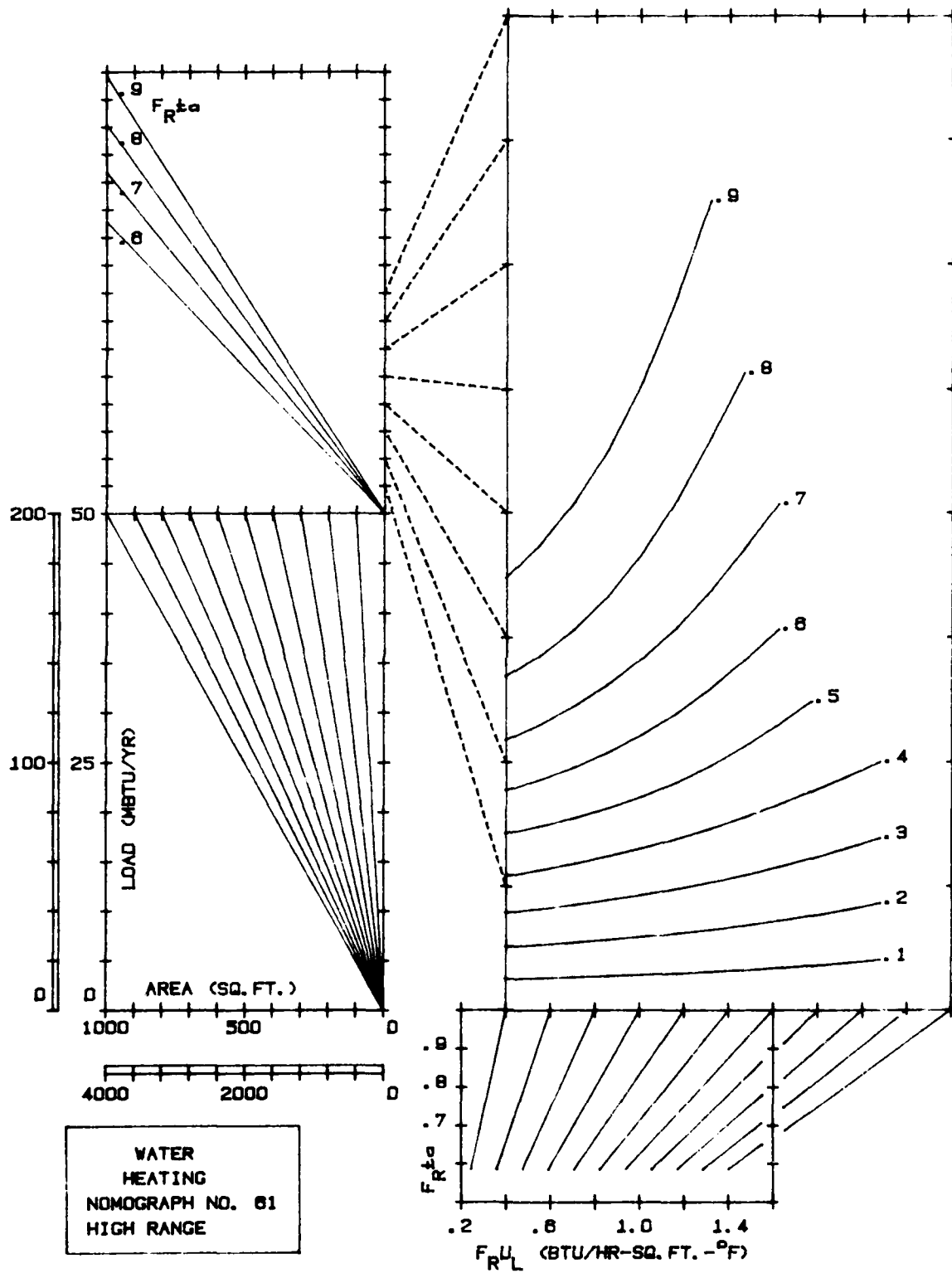


PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS



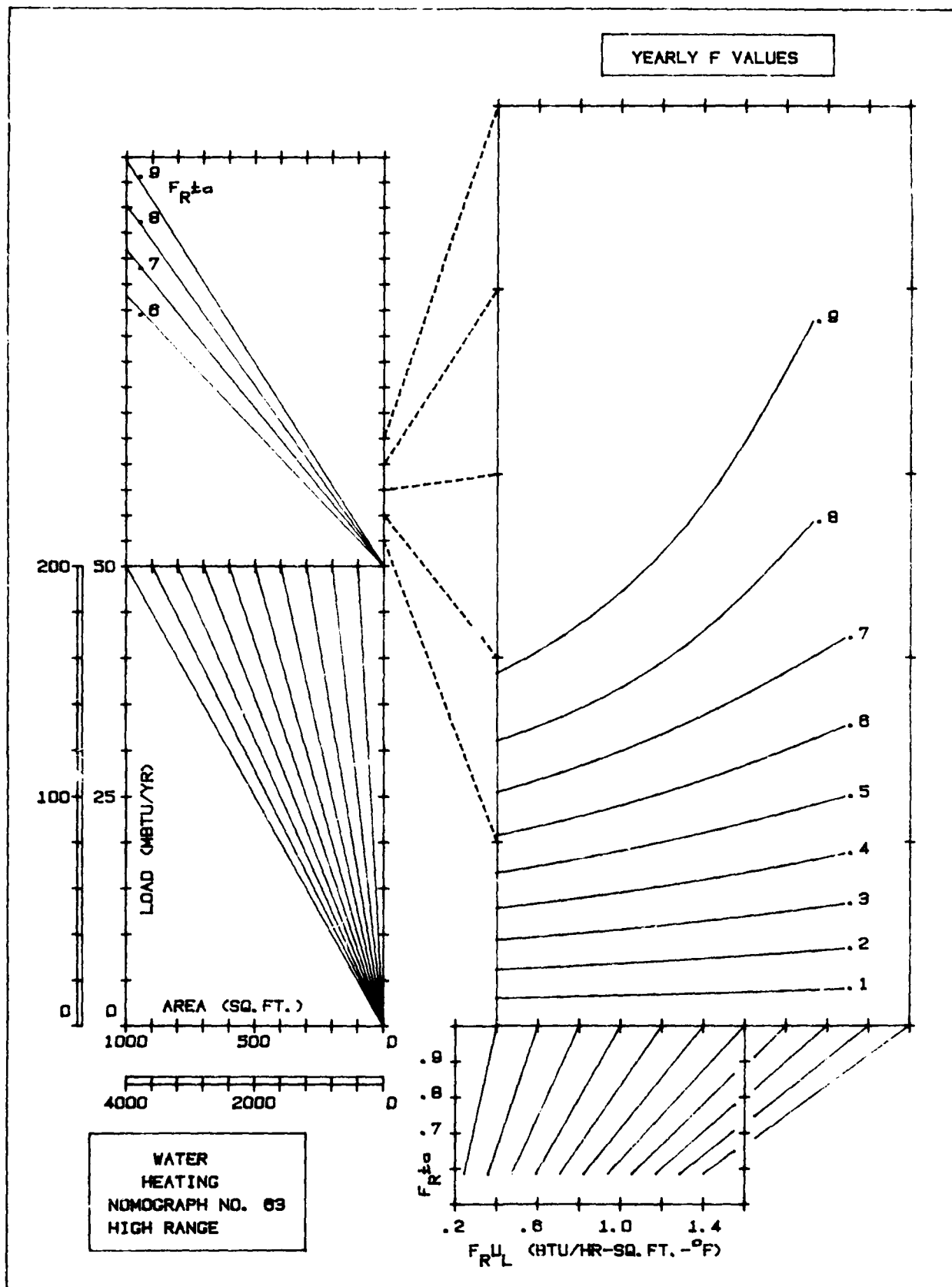
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

YEARLY F VALUES



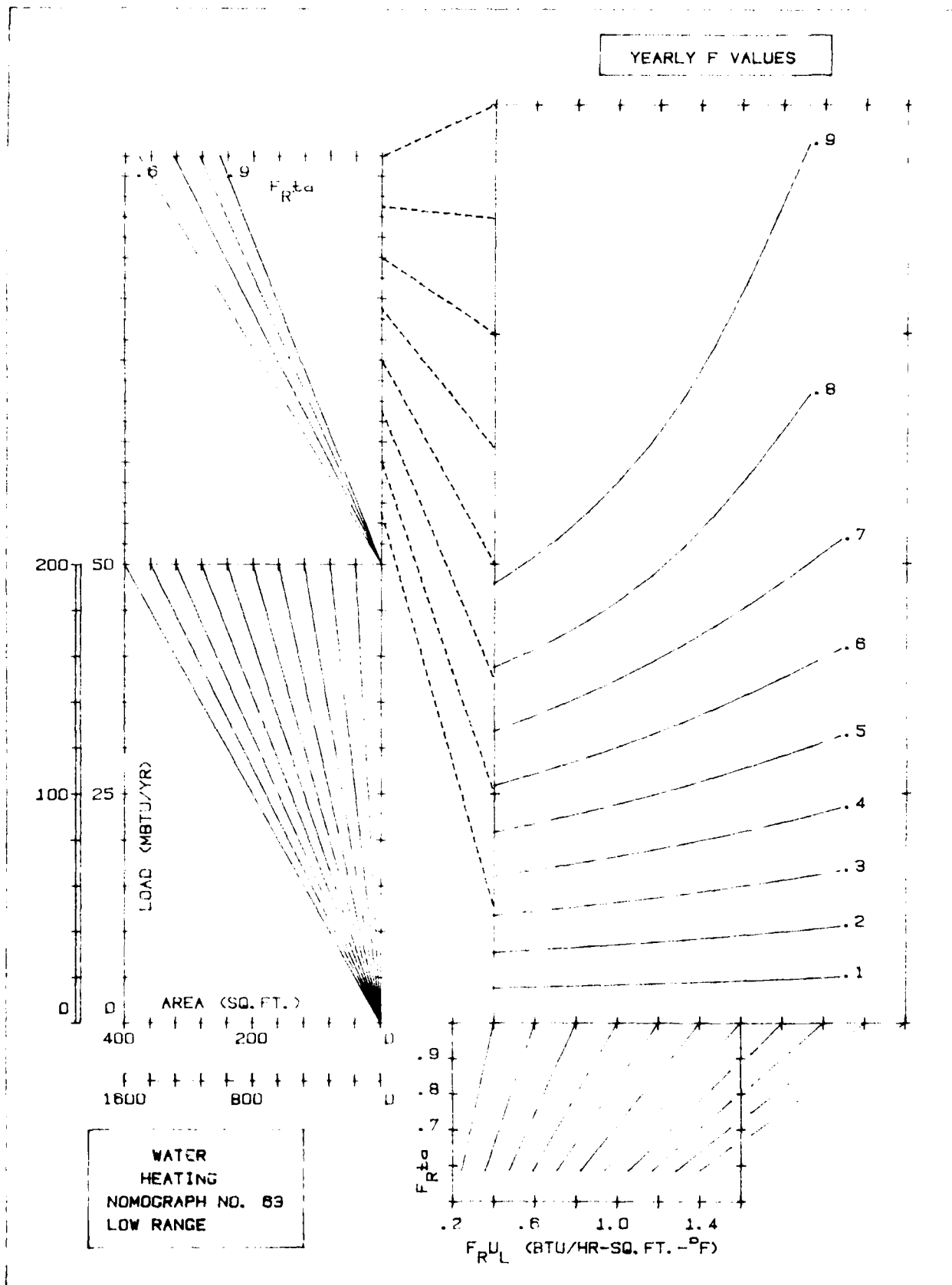
WATER
HEATING
NOMOGRAPH NO. 81
HIGH RANGE

PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

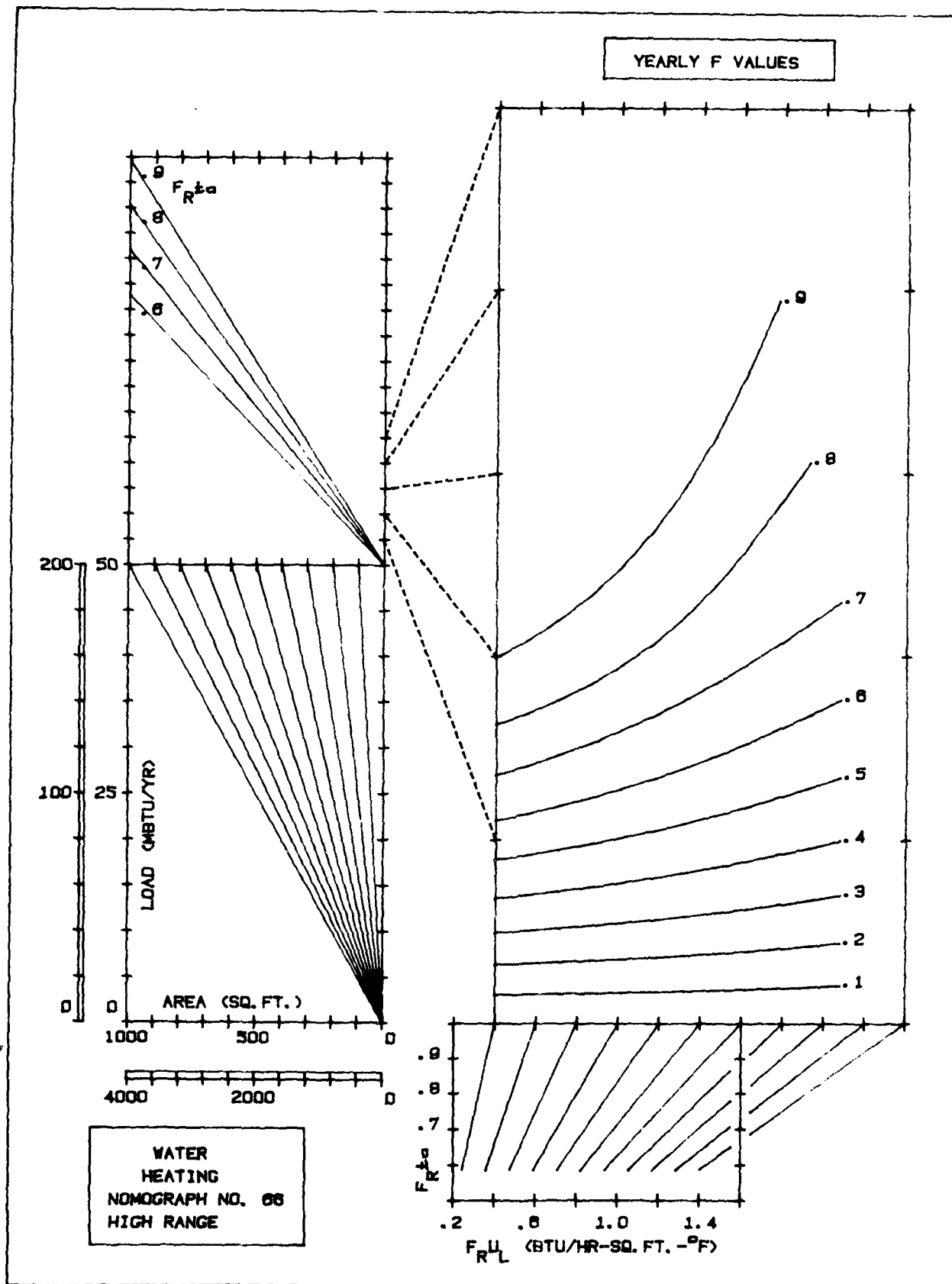


PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

C99

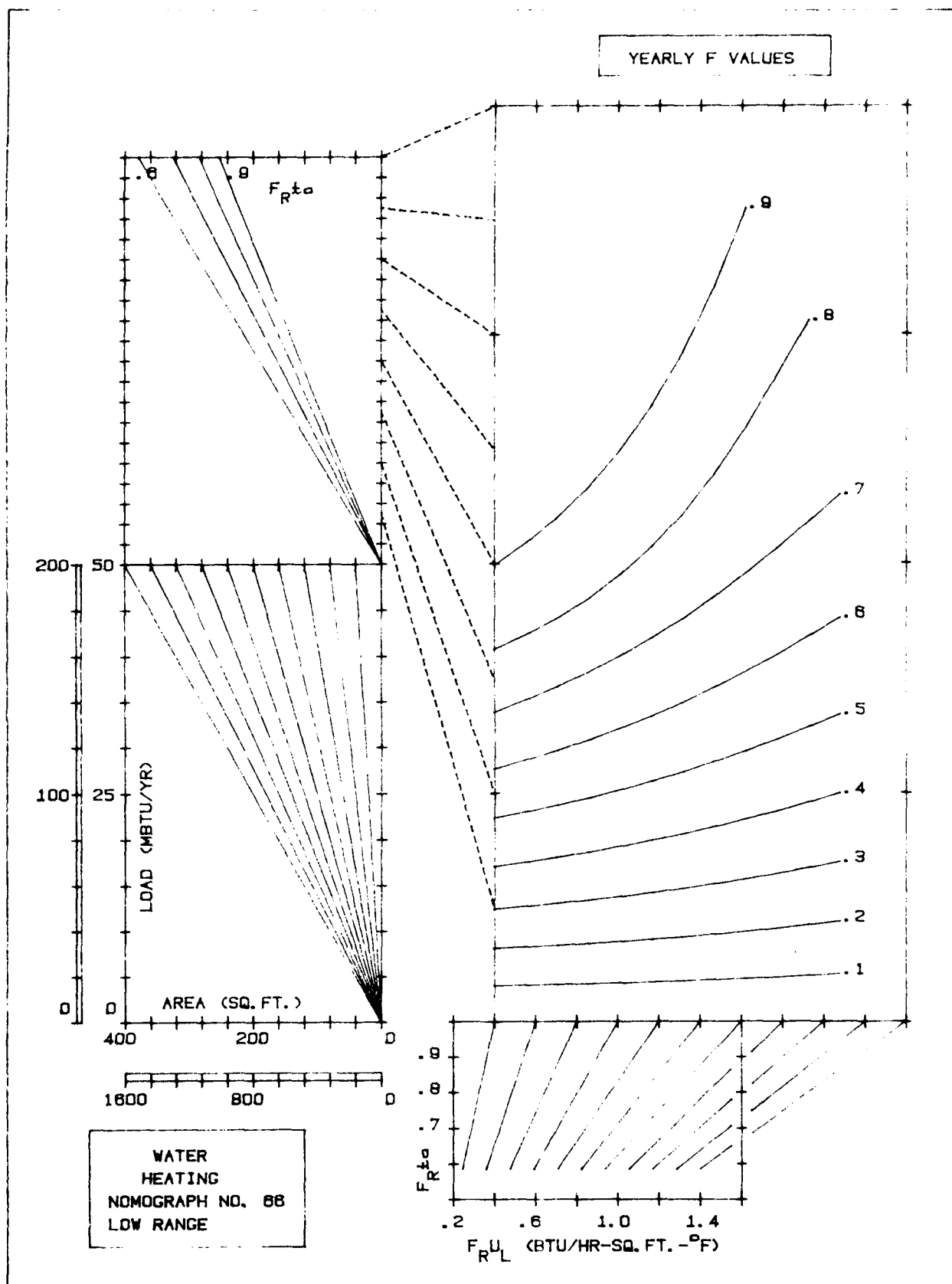


WATER
 HEATING
 NOMOGRAPH NO. 63
 LOW RANGE

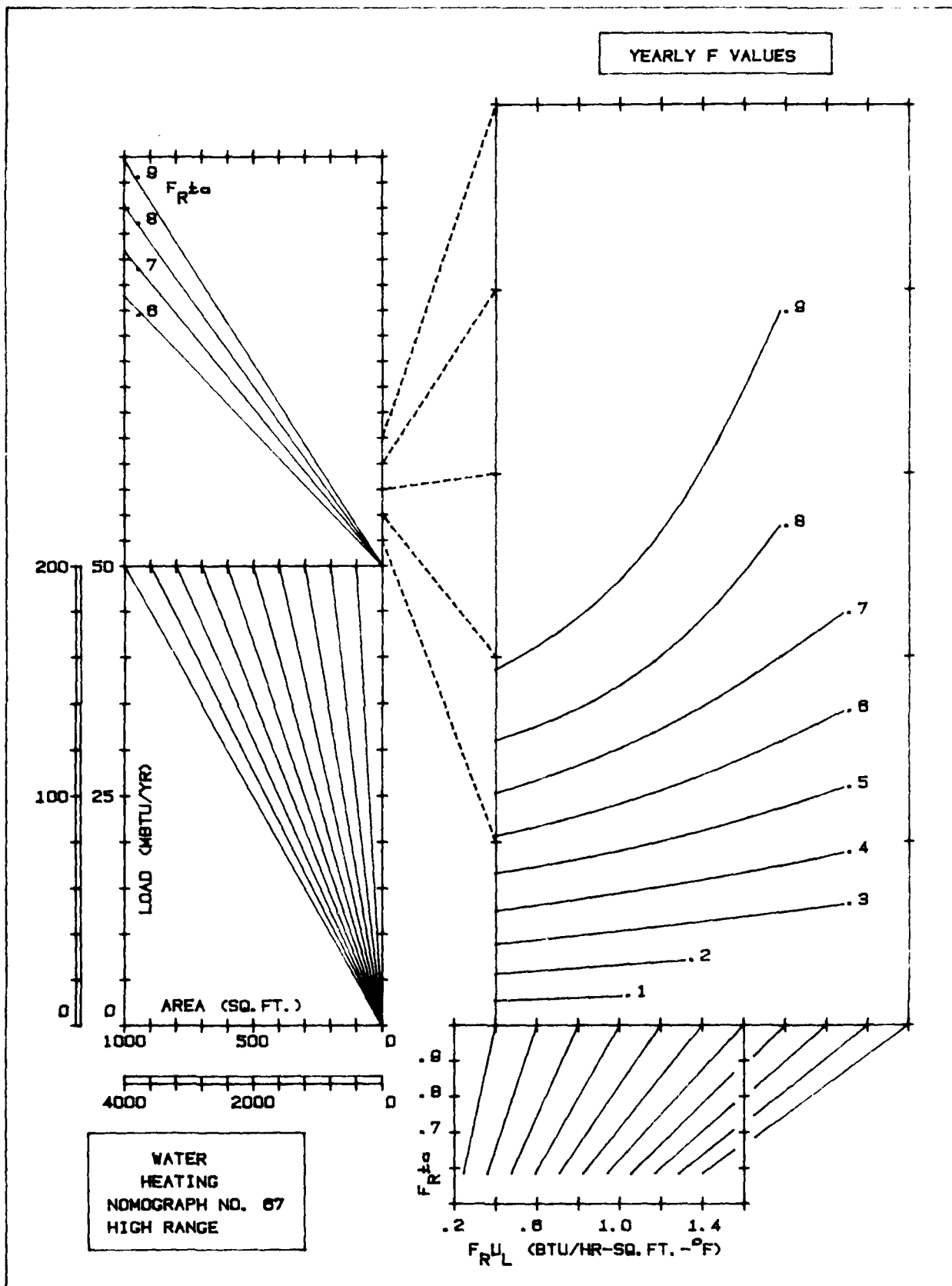


PREPARED 28 JUN 62 FOR AFESC BY USAFA/DFMS

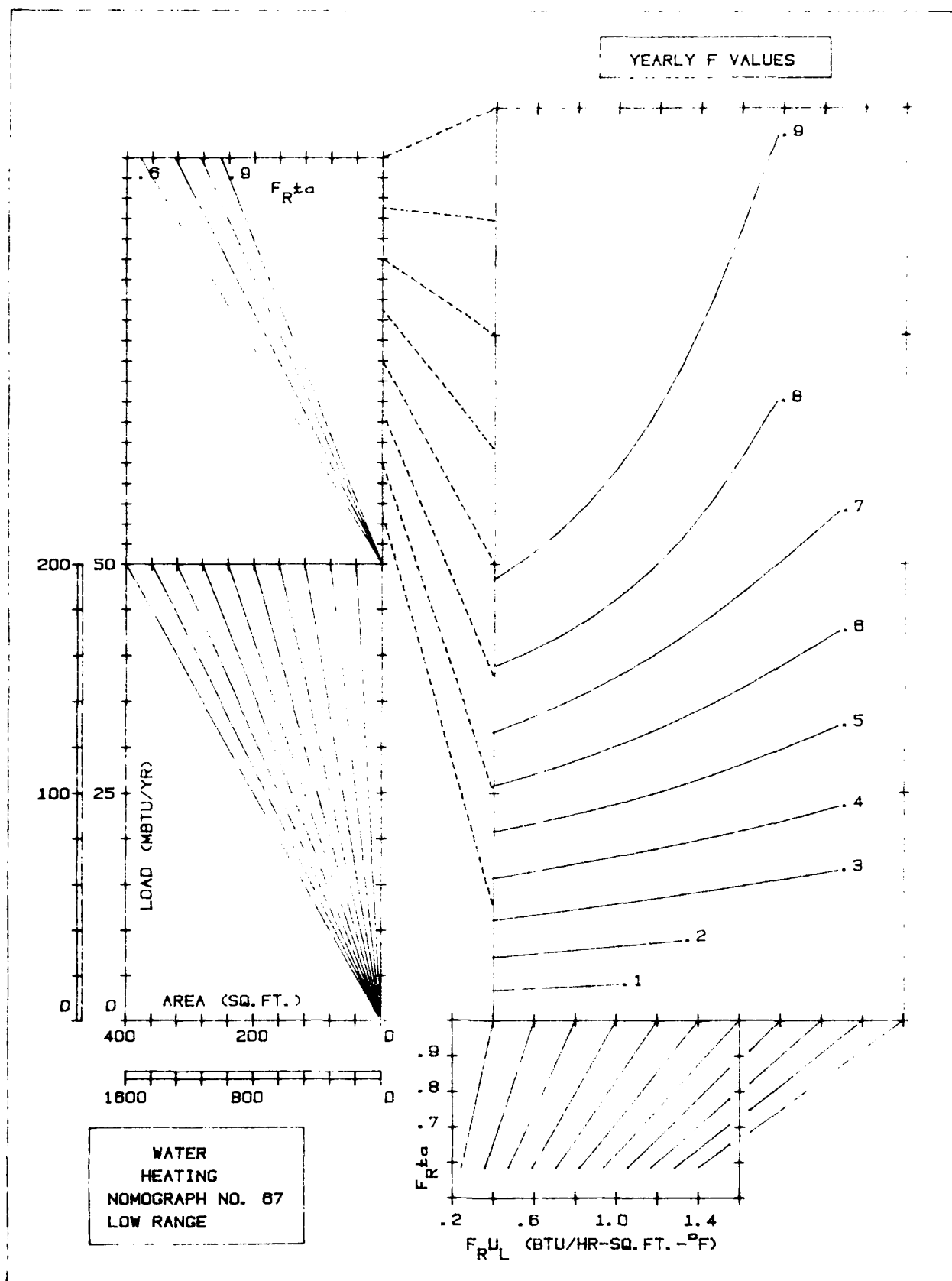
C101



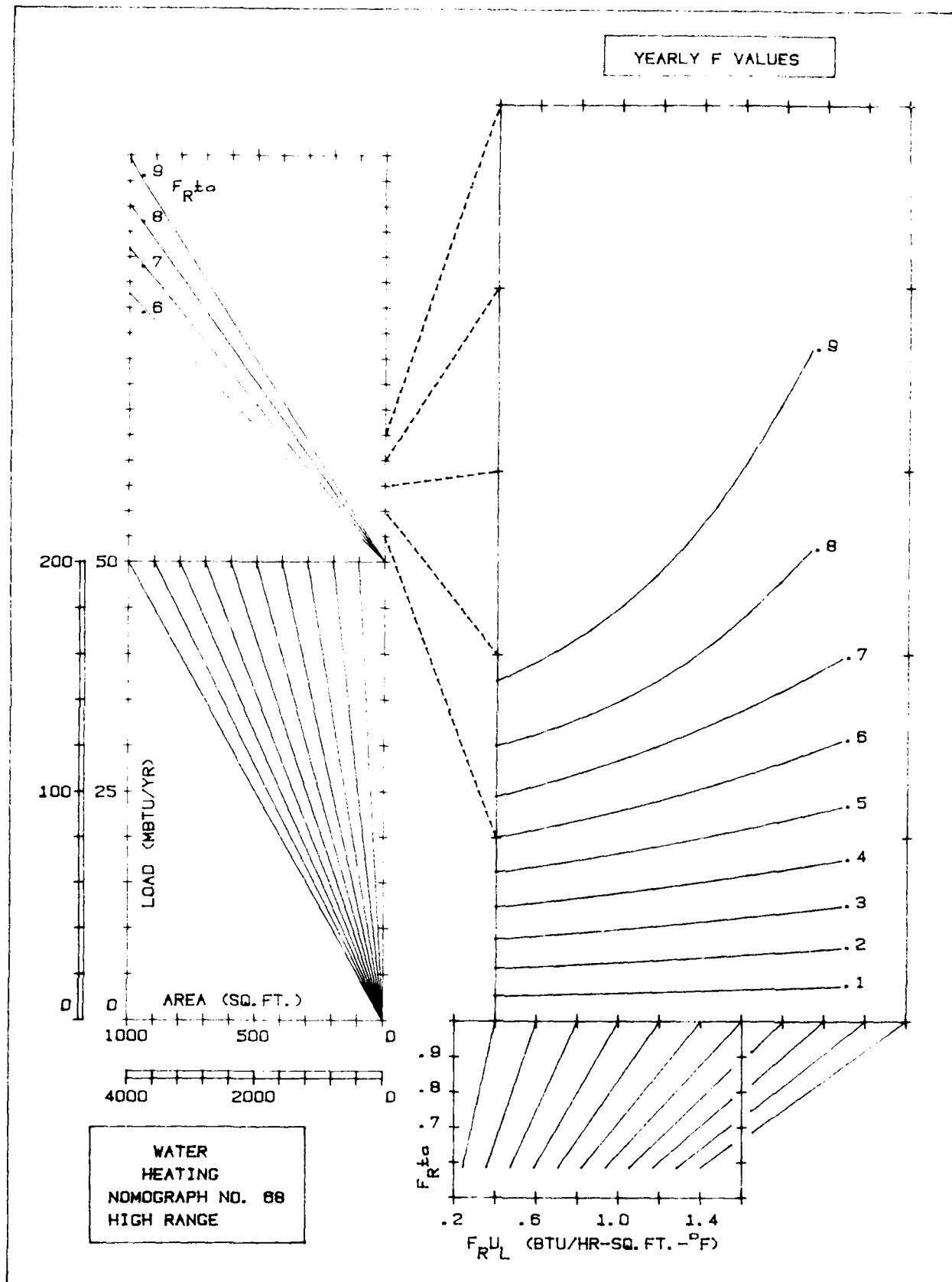
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS



PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS



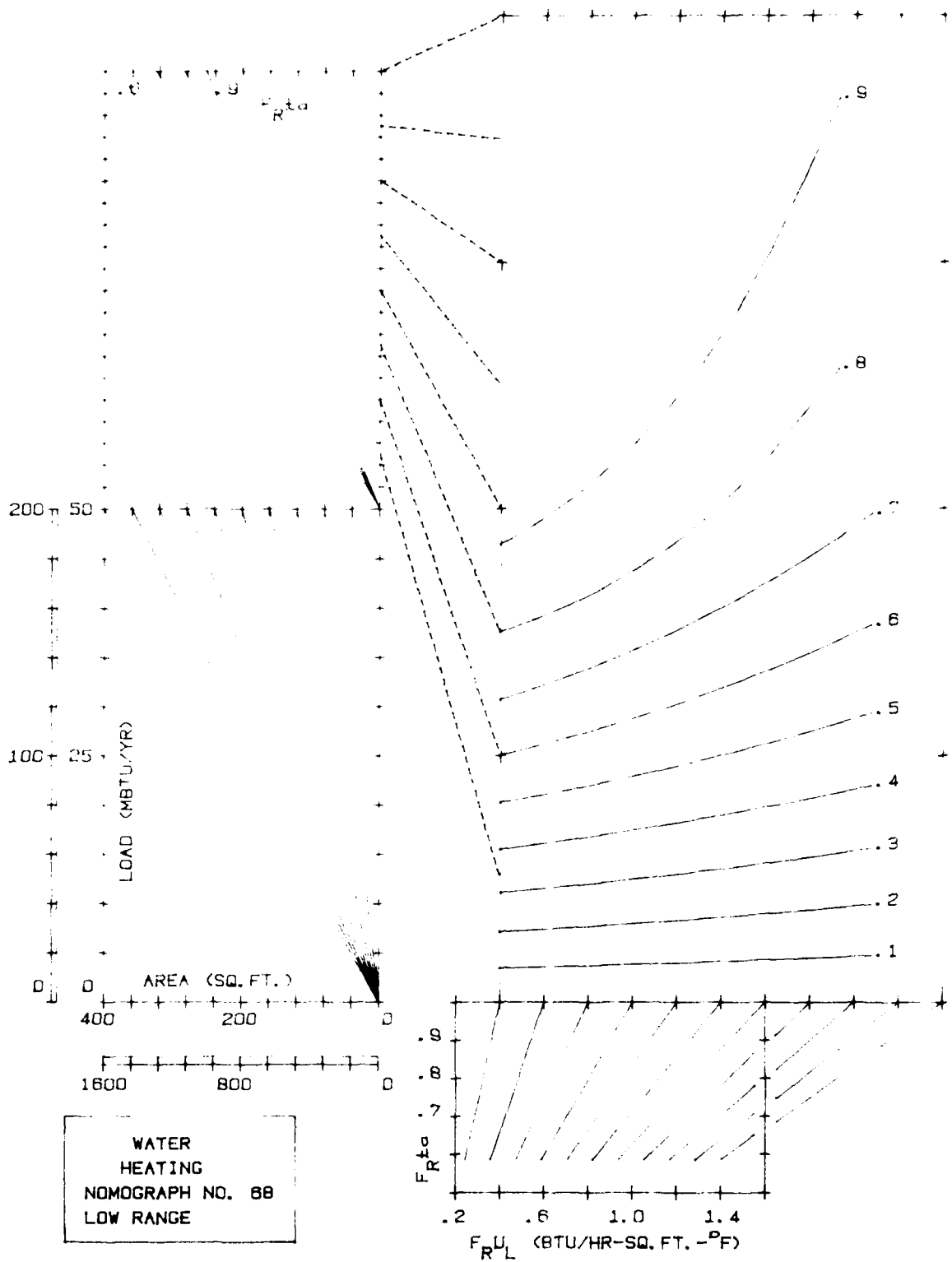
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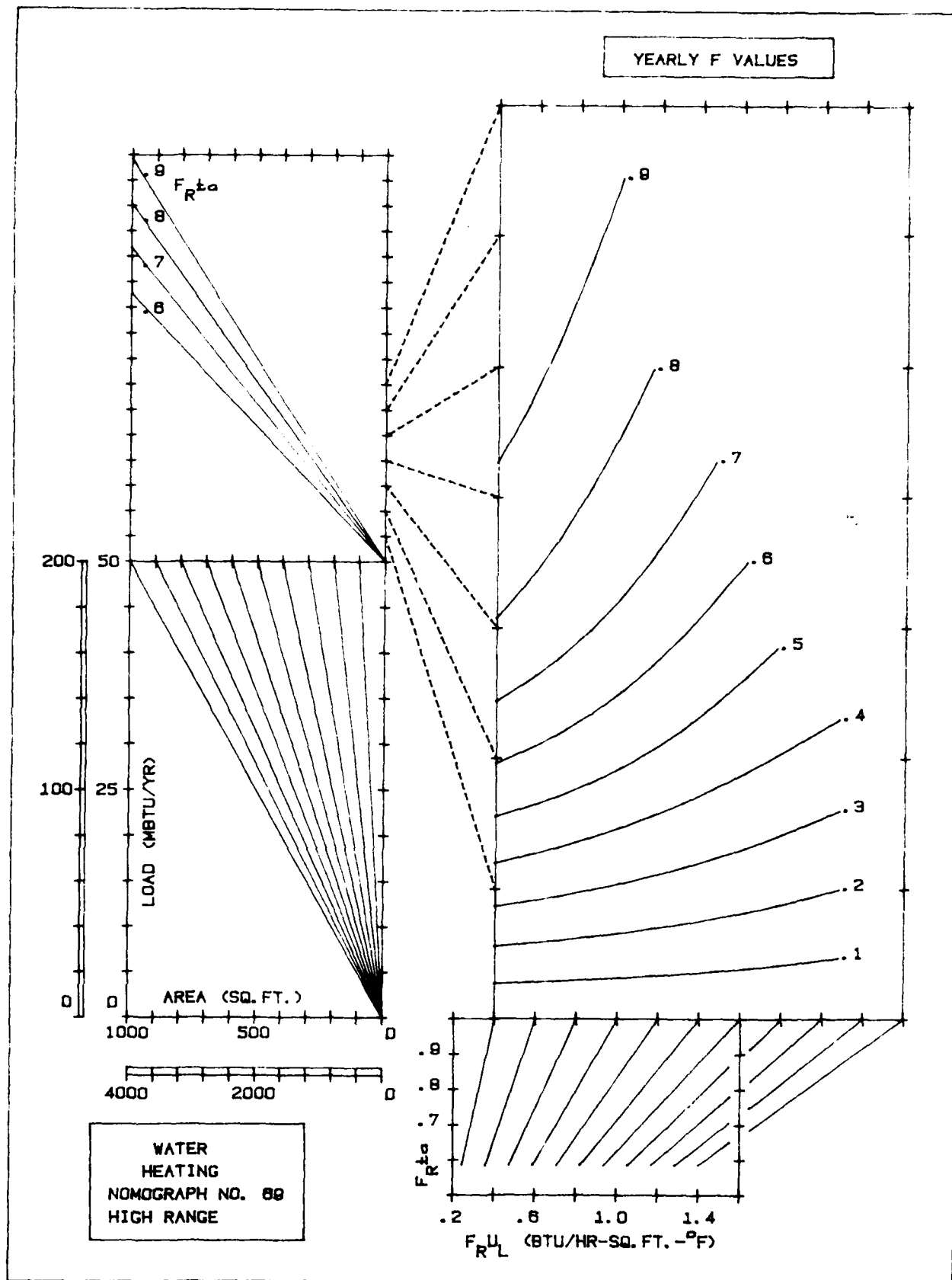
C105

YEARLY F VALUES



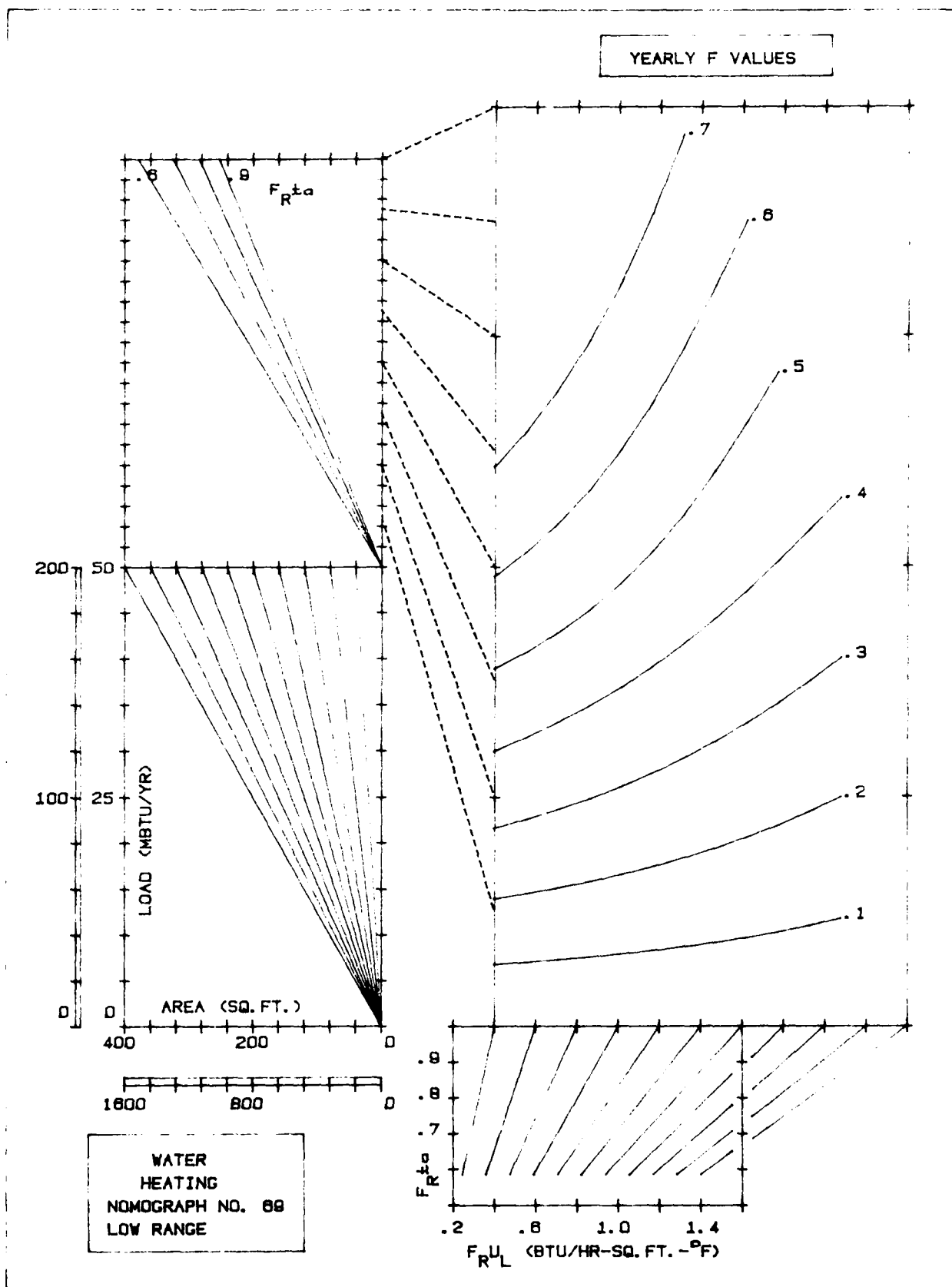
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C106

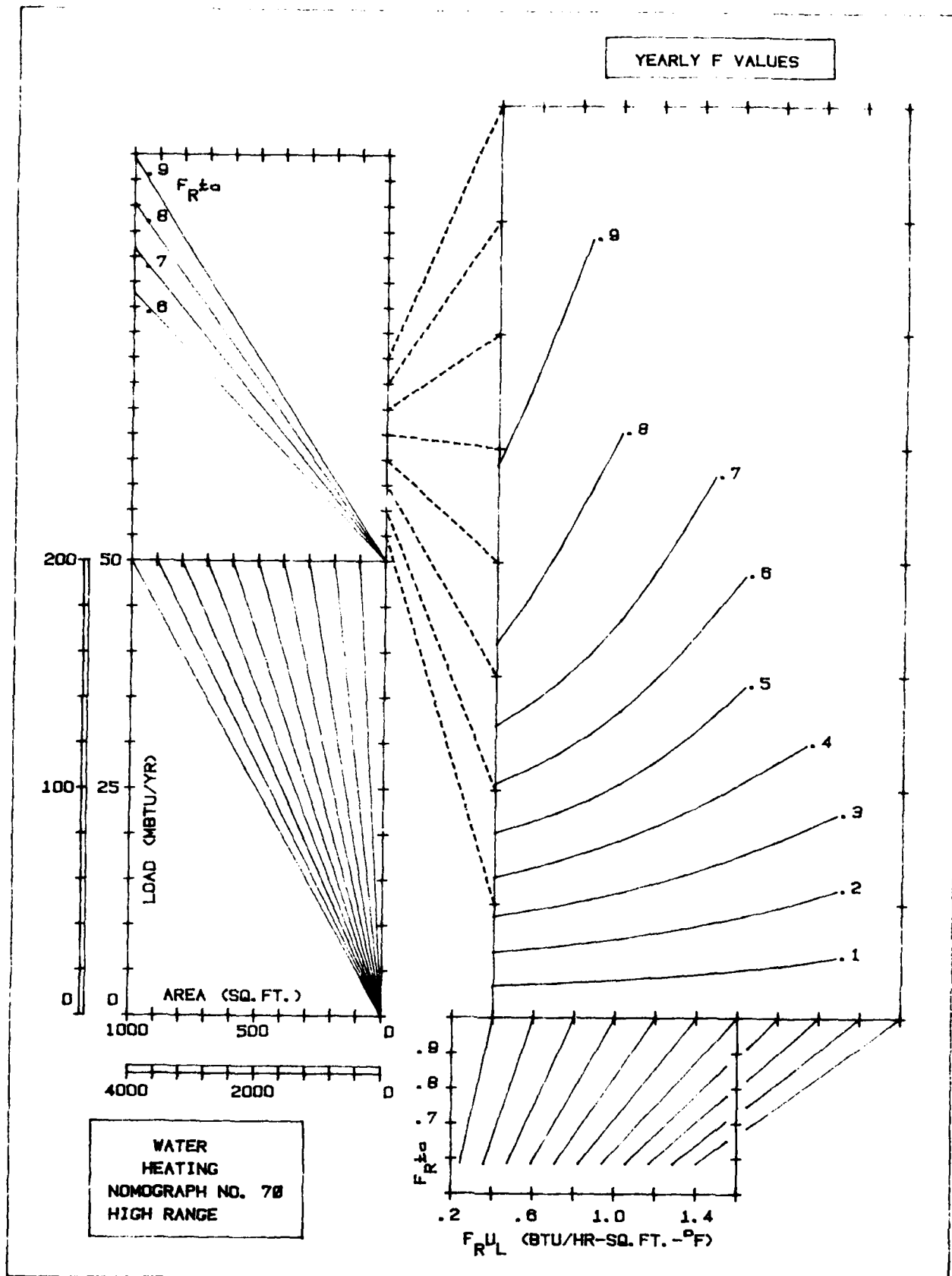


PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

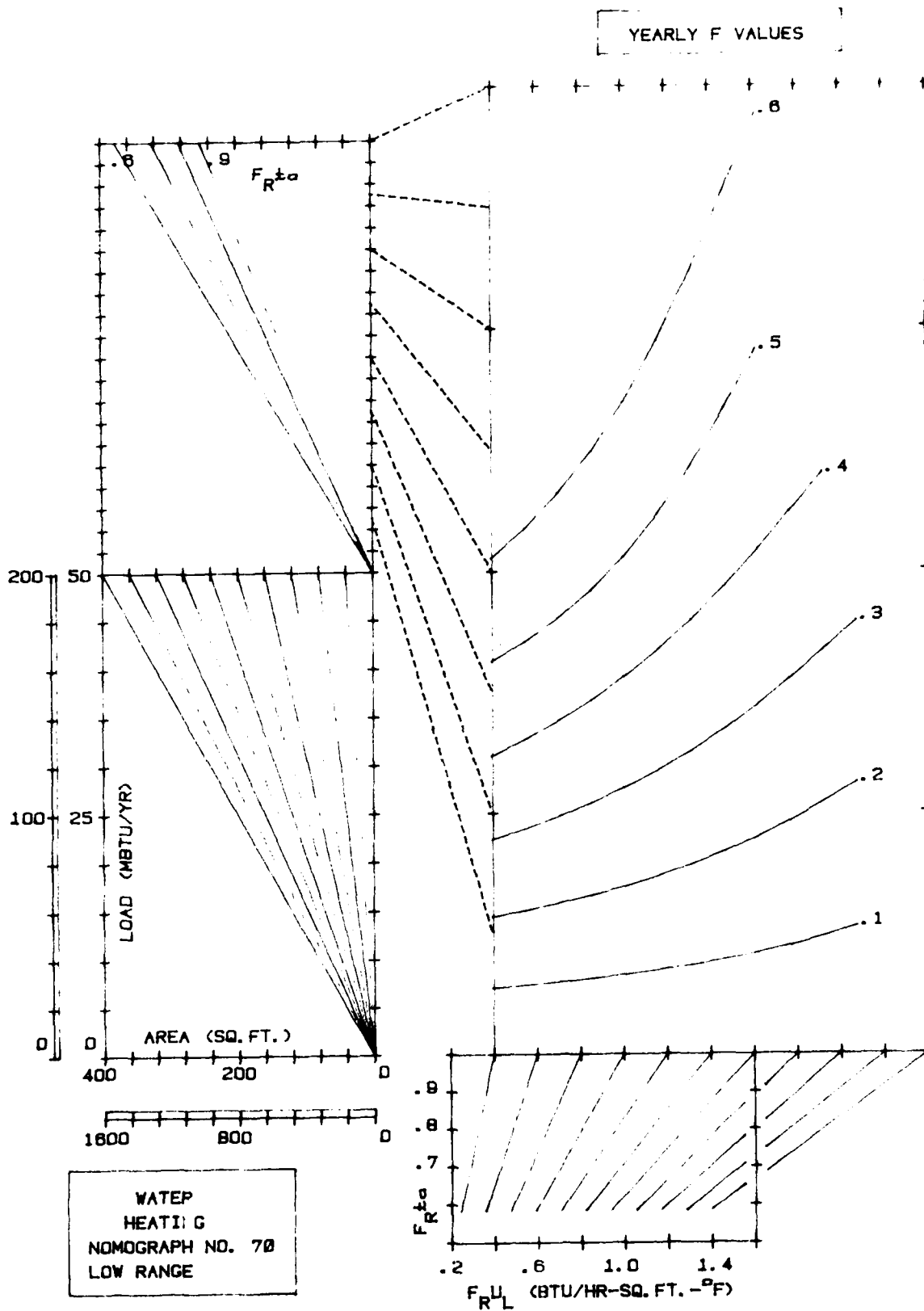
C107



PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

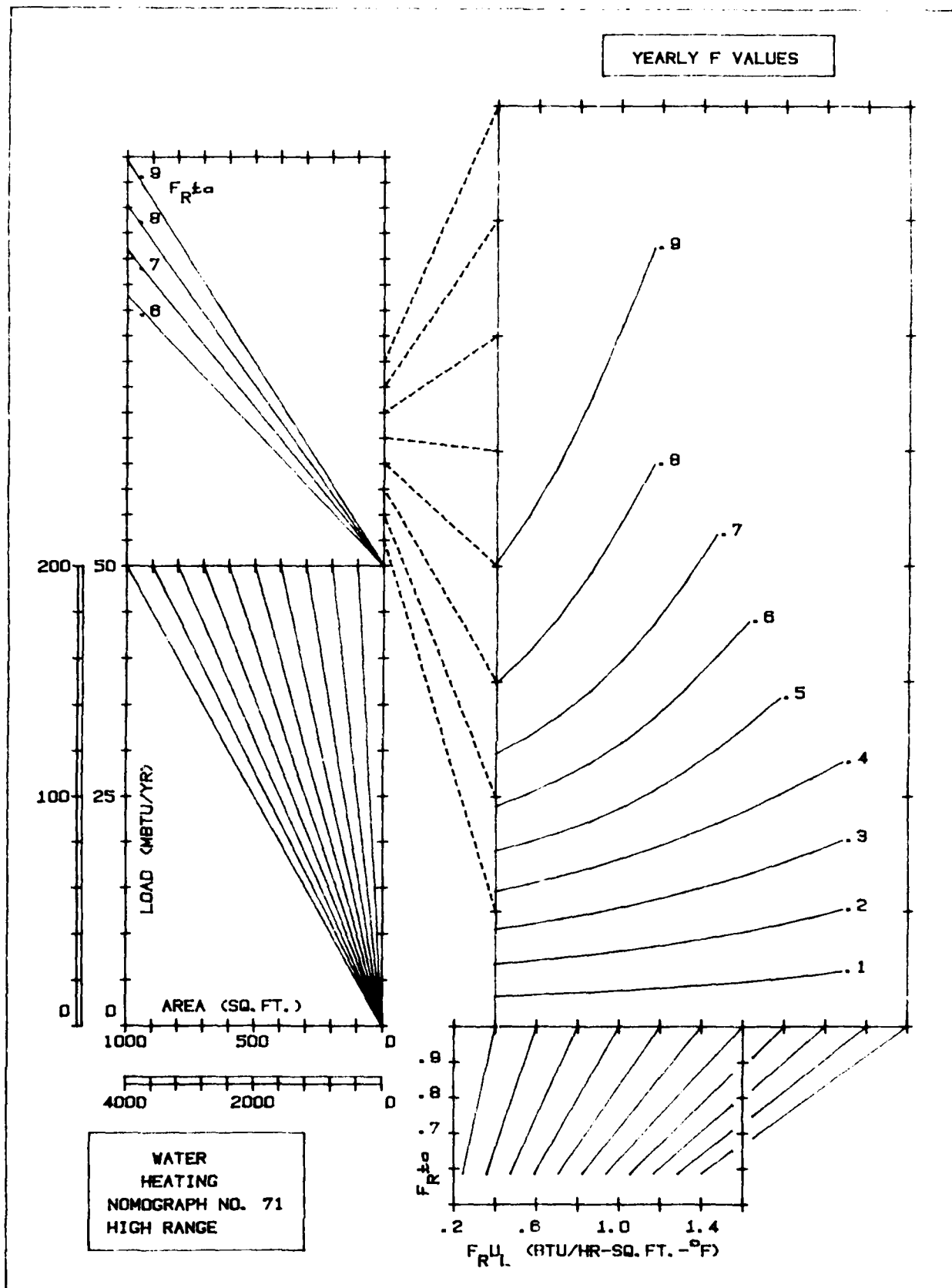


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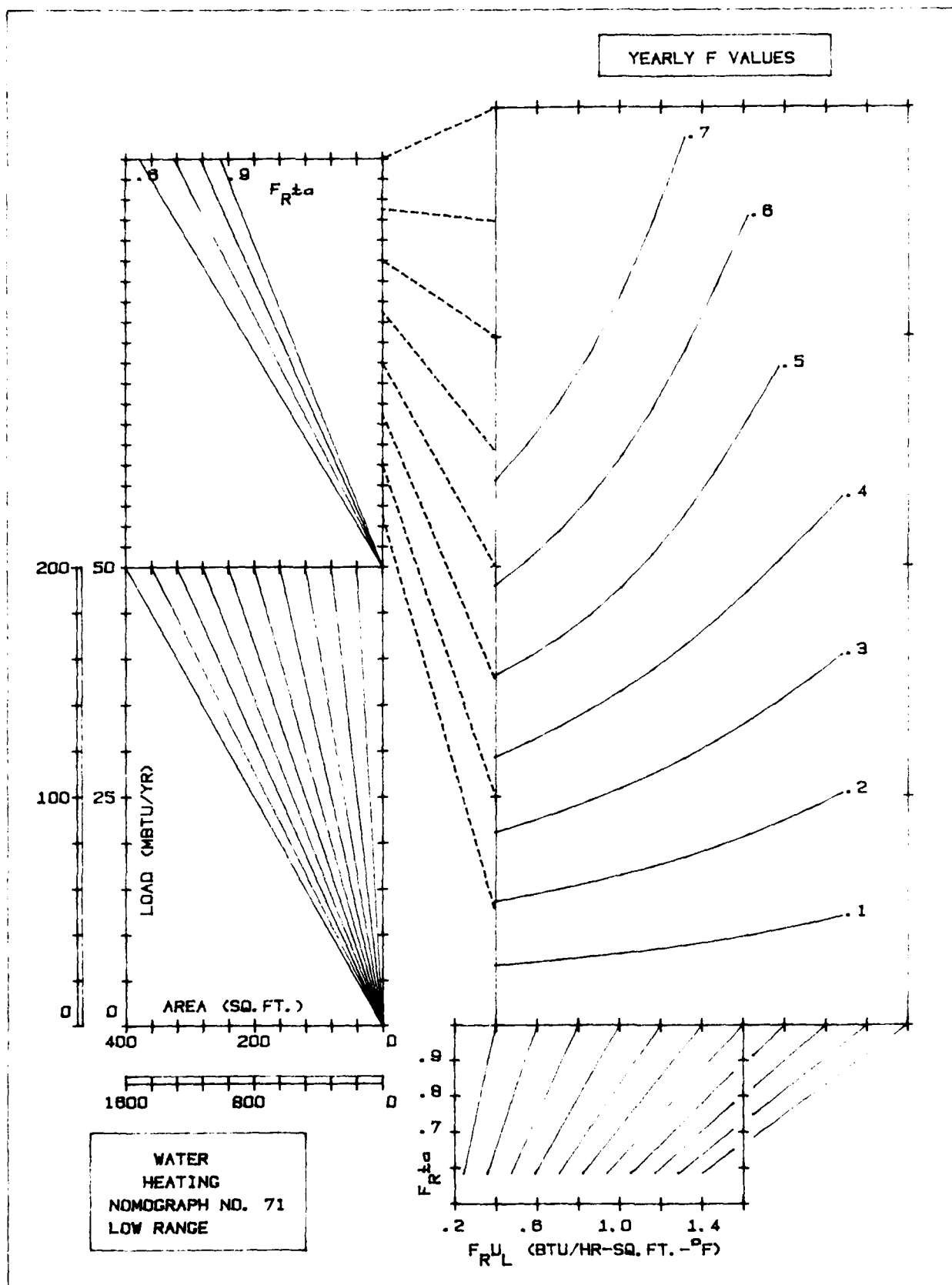


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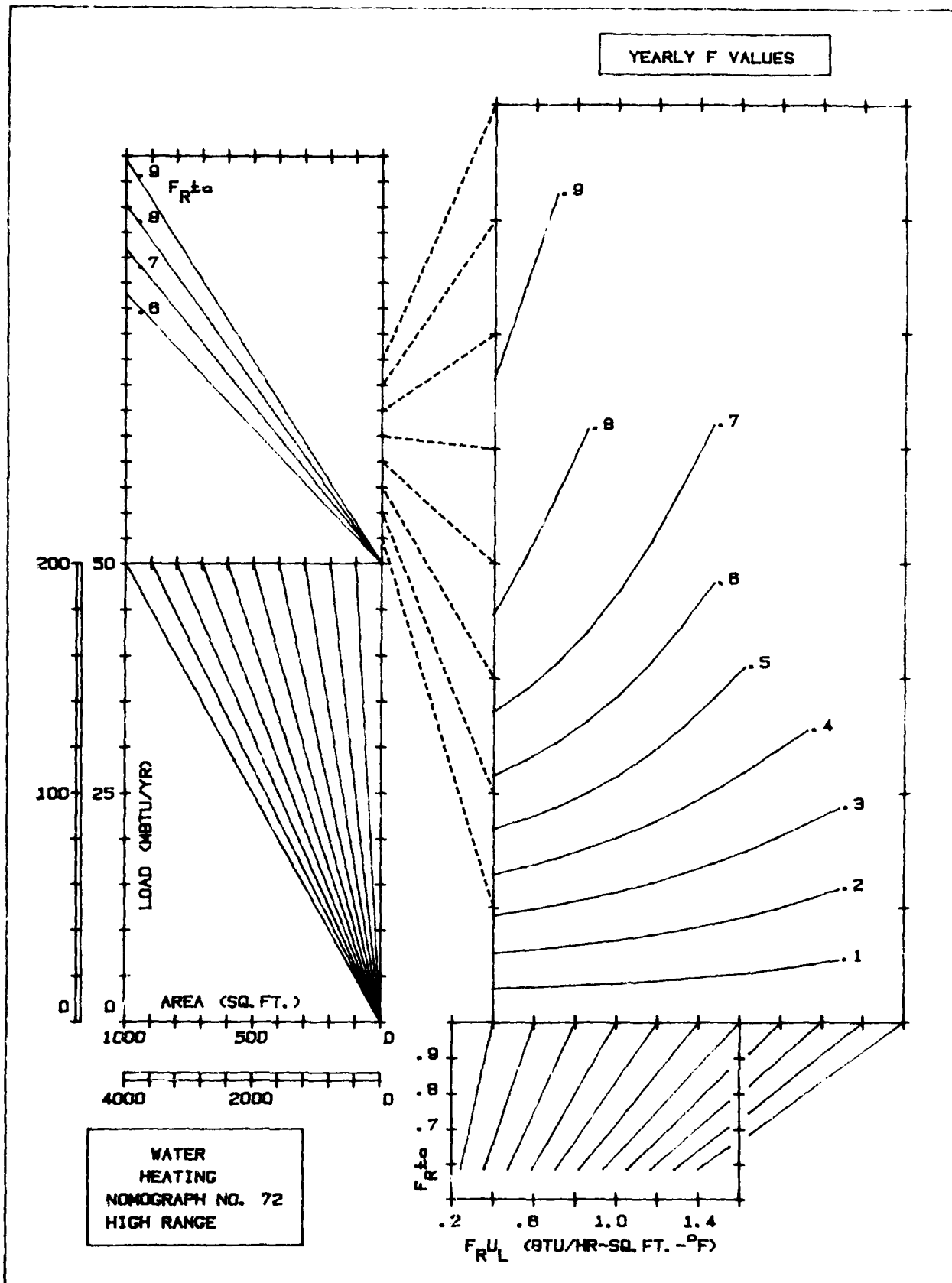
C110



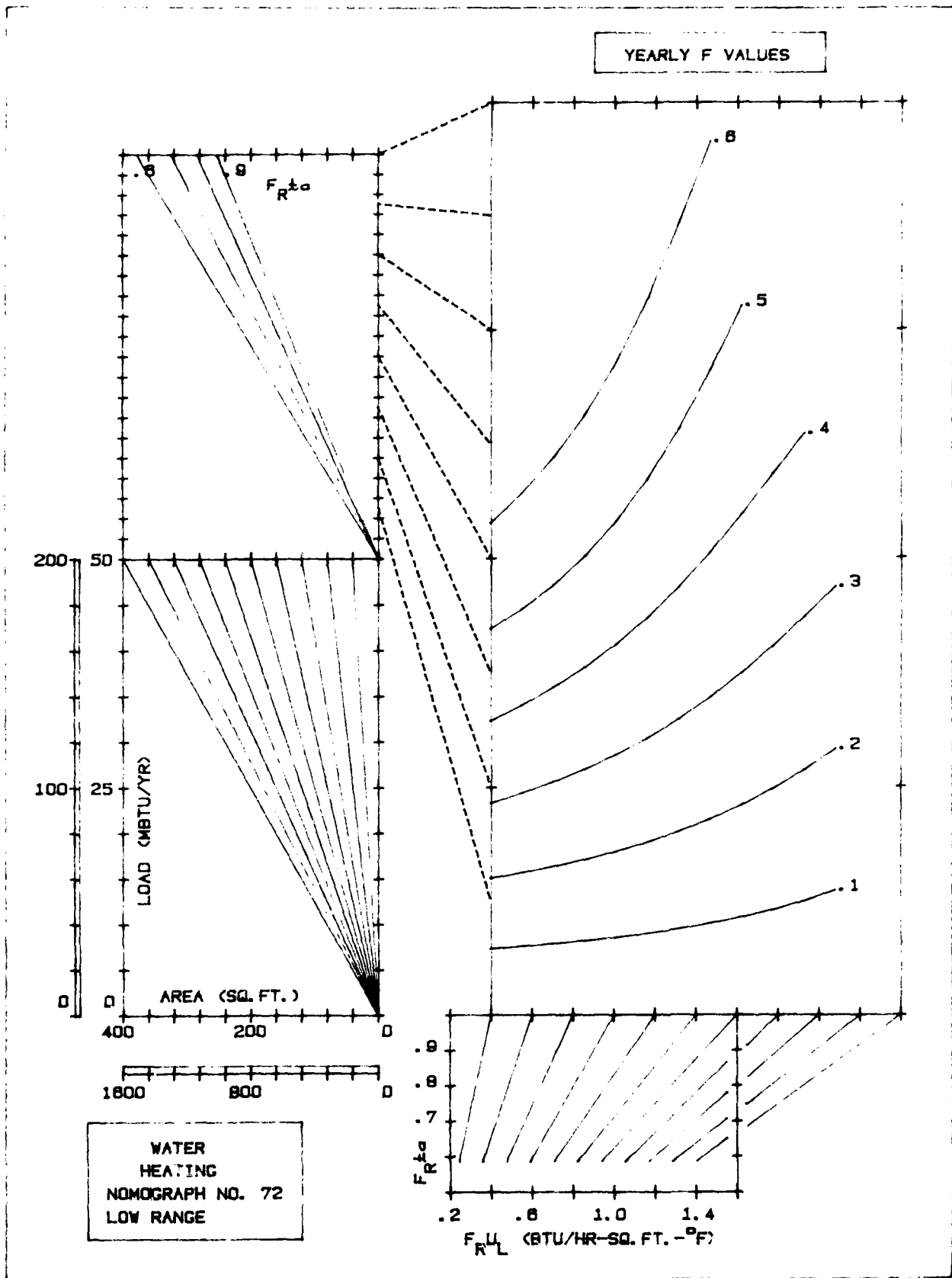
PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS



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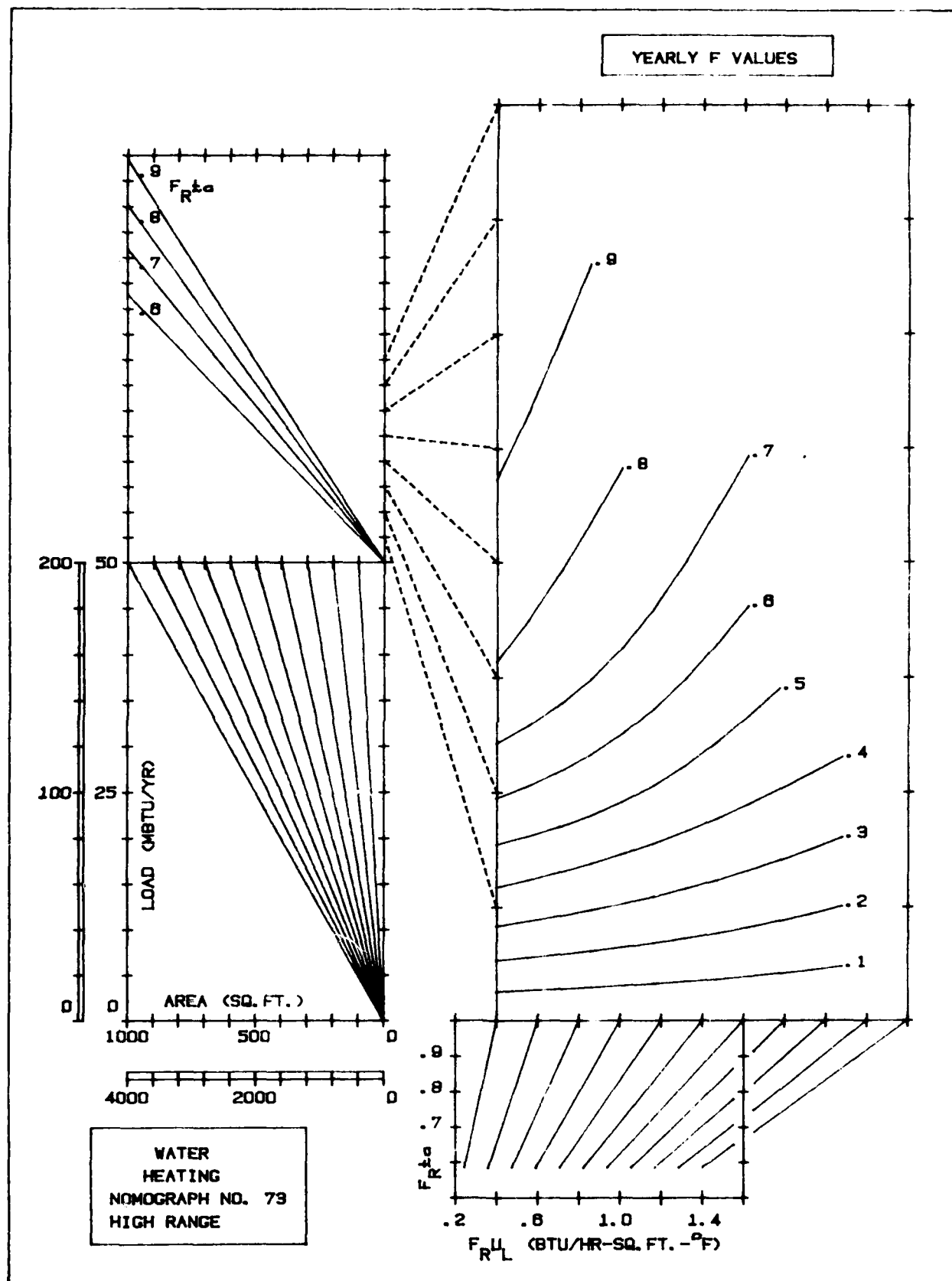


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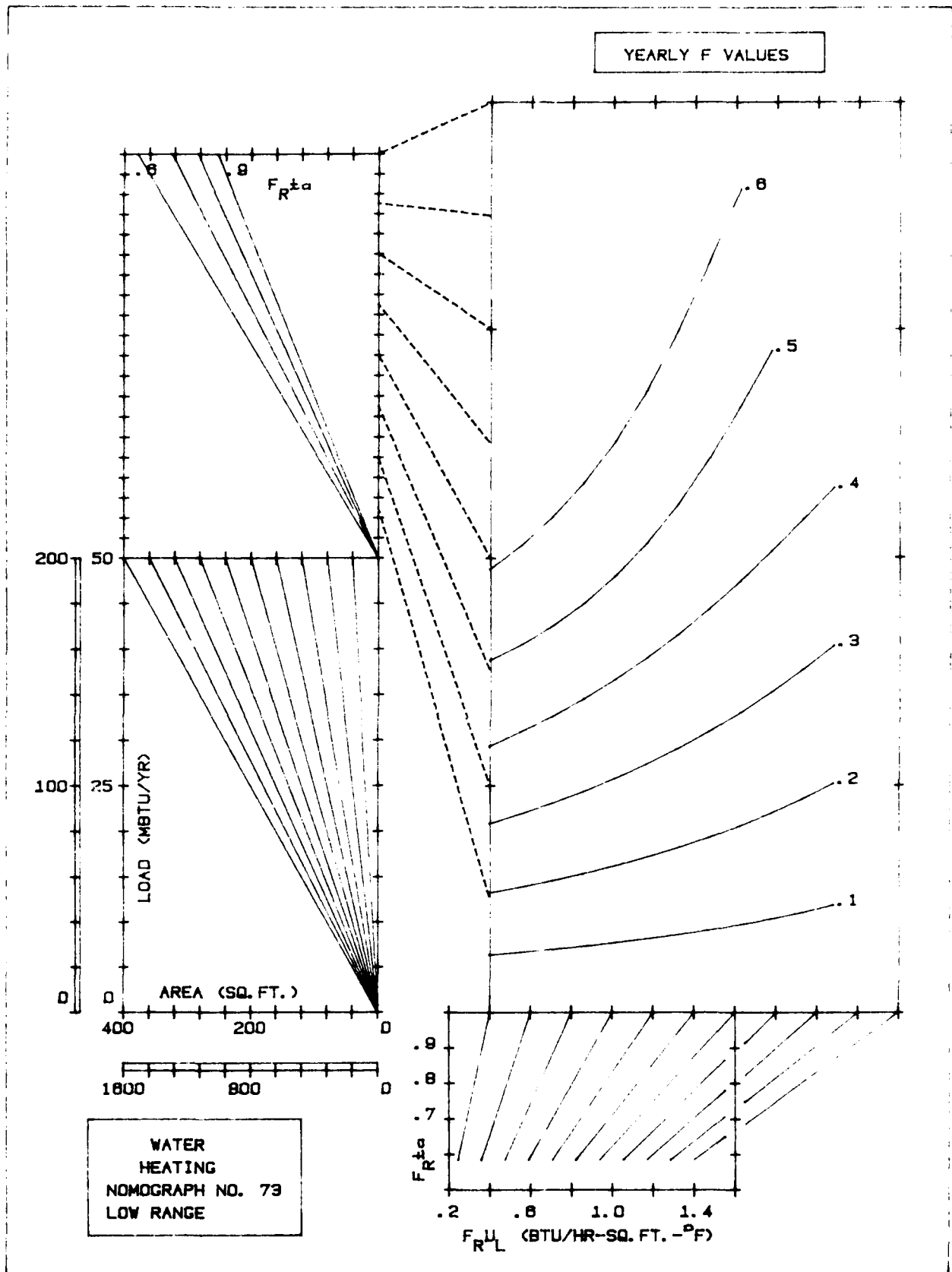


PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C114

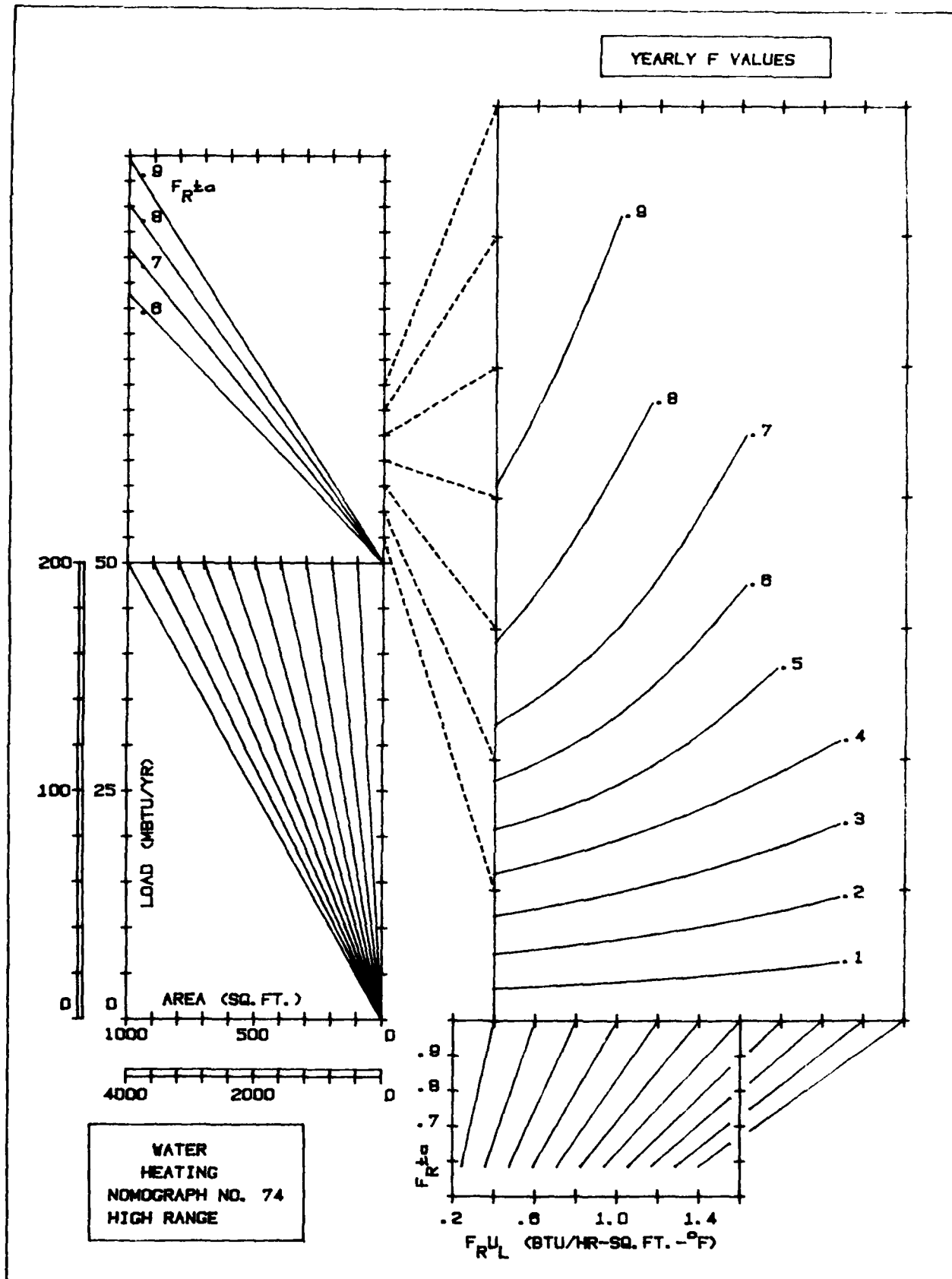


PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS



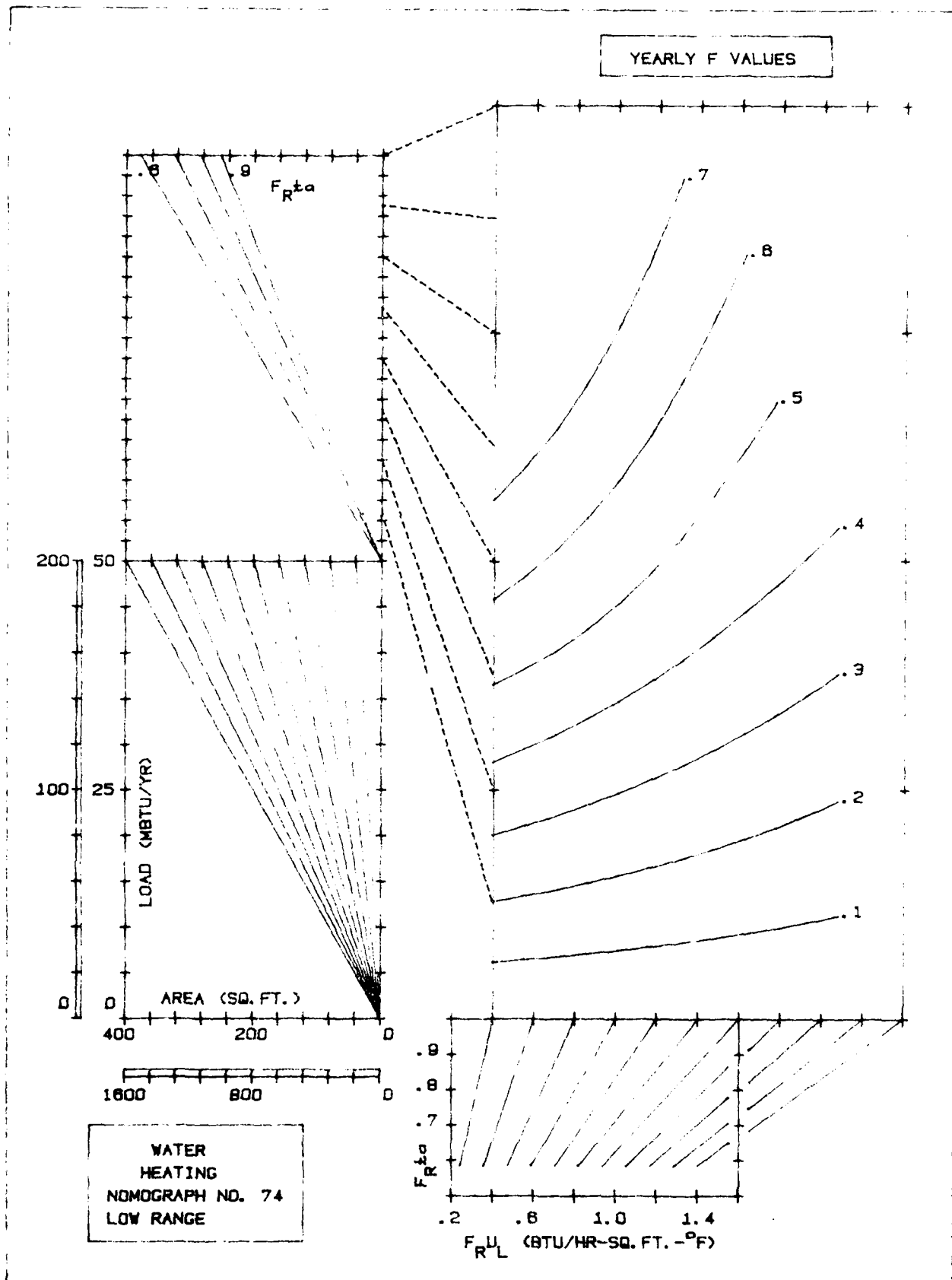
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C116



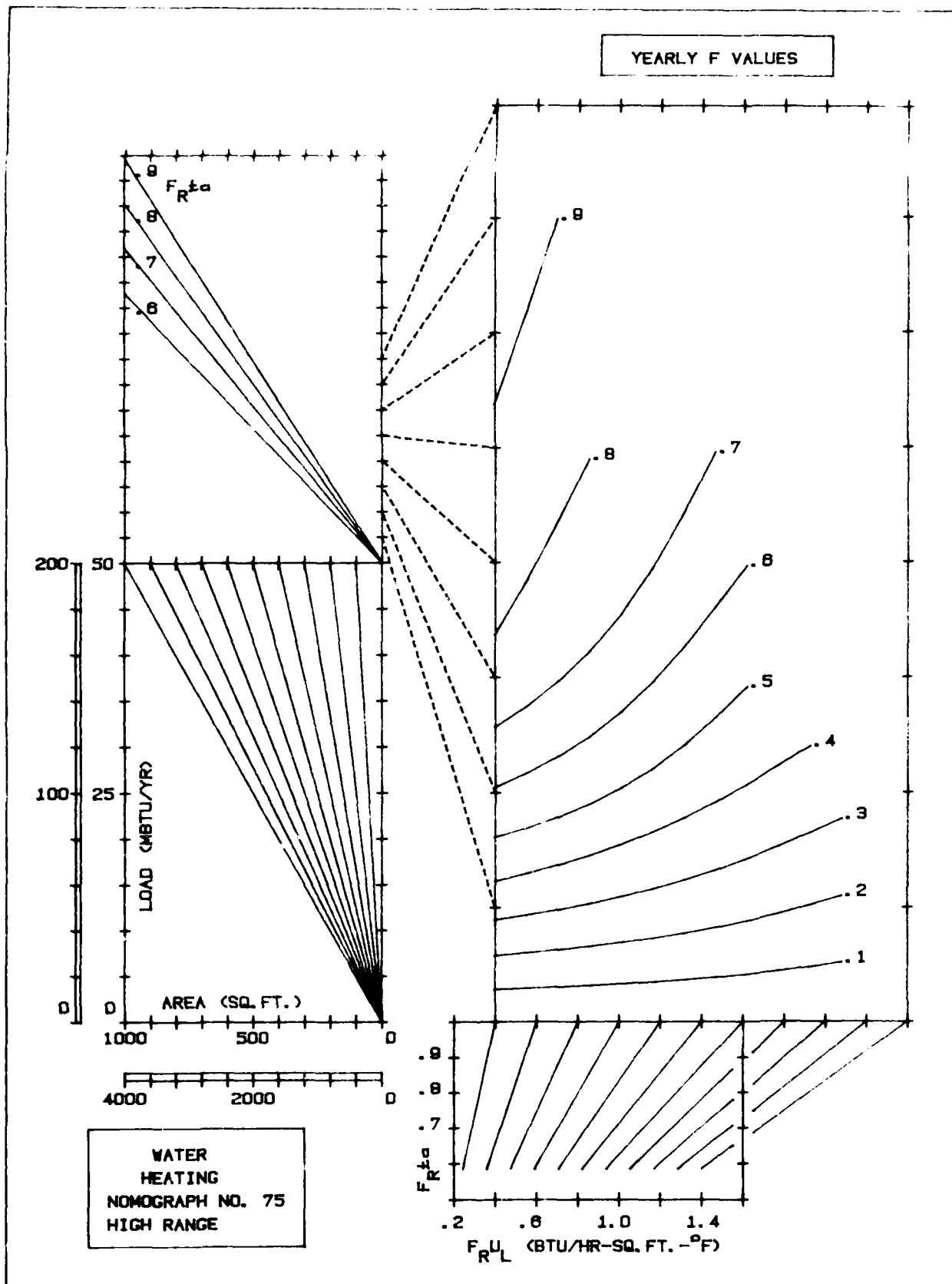
PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

C117



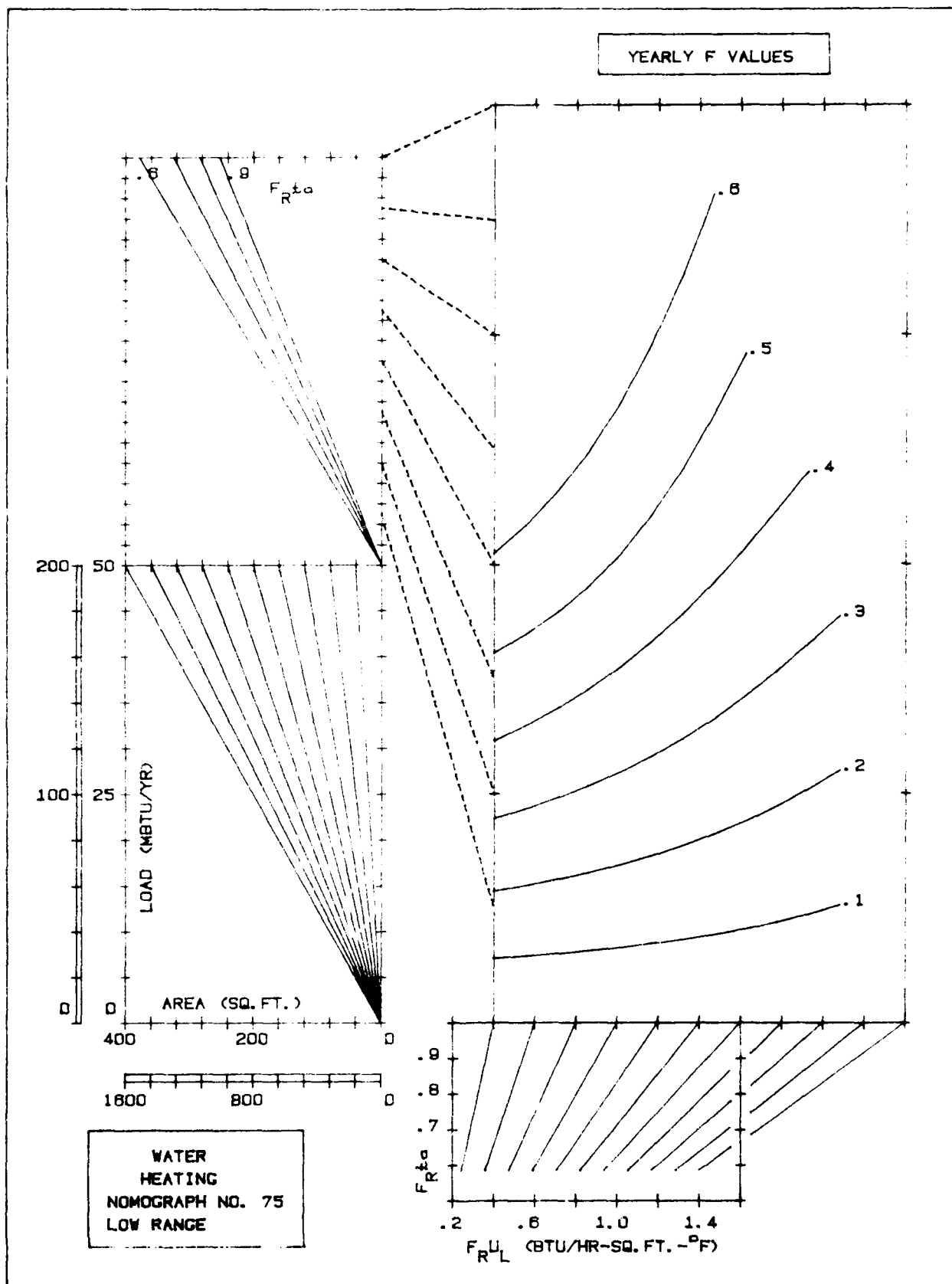
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C118



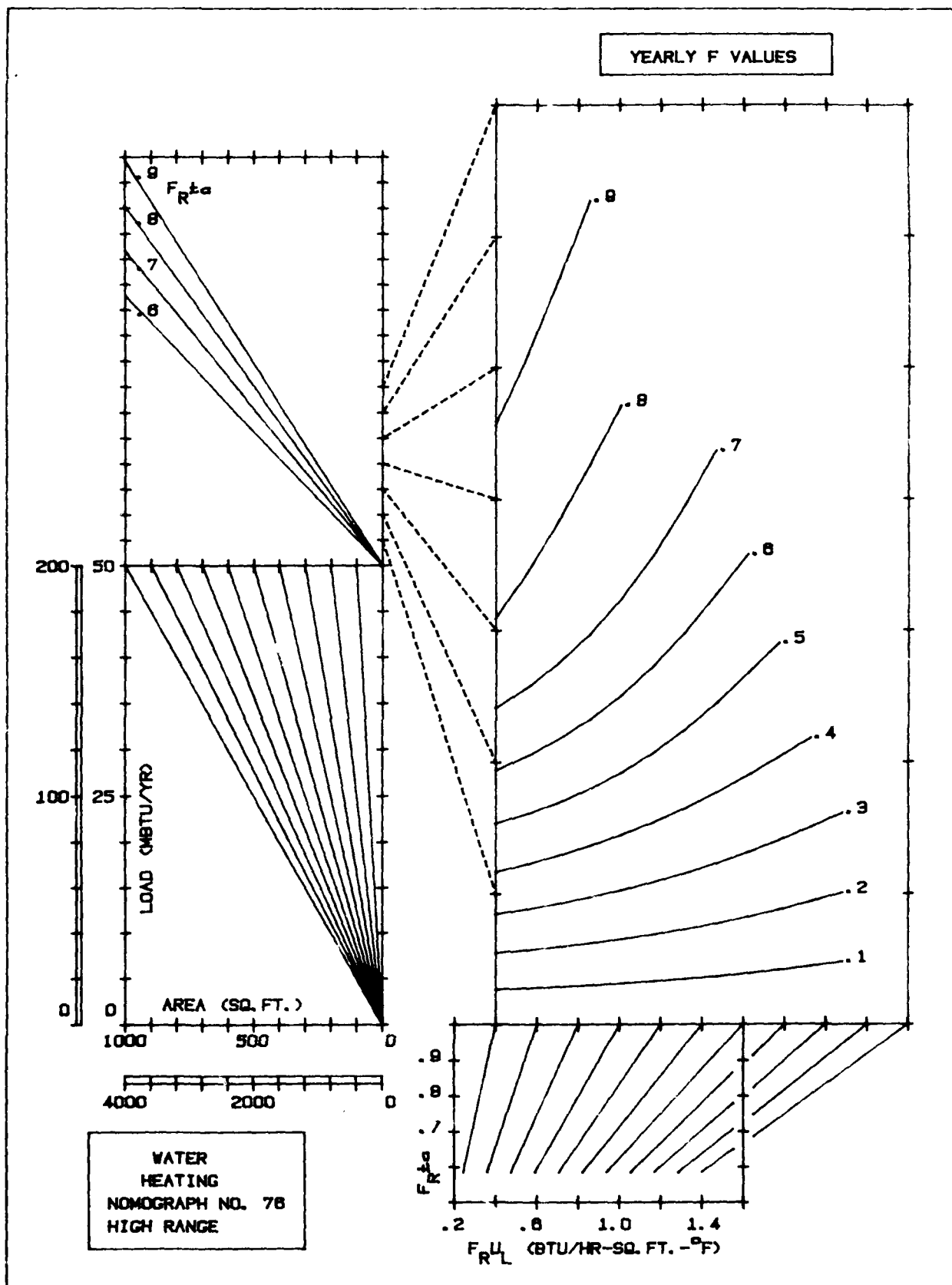
PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

C119



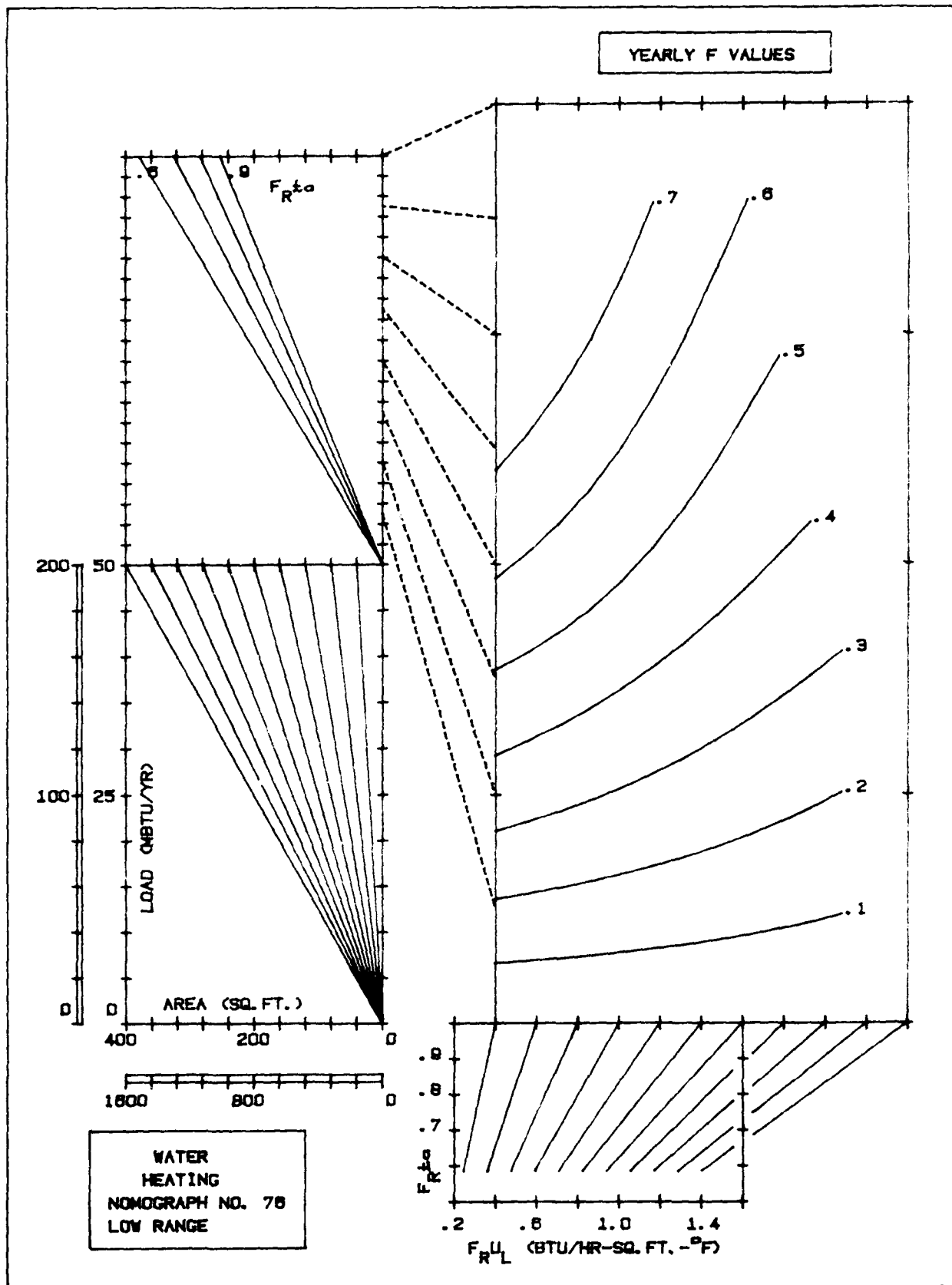
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C120

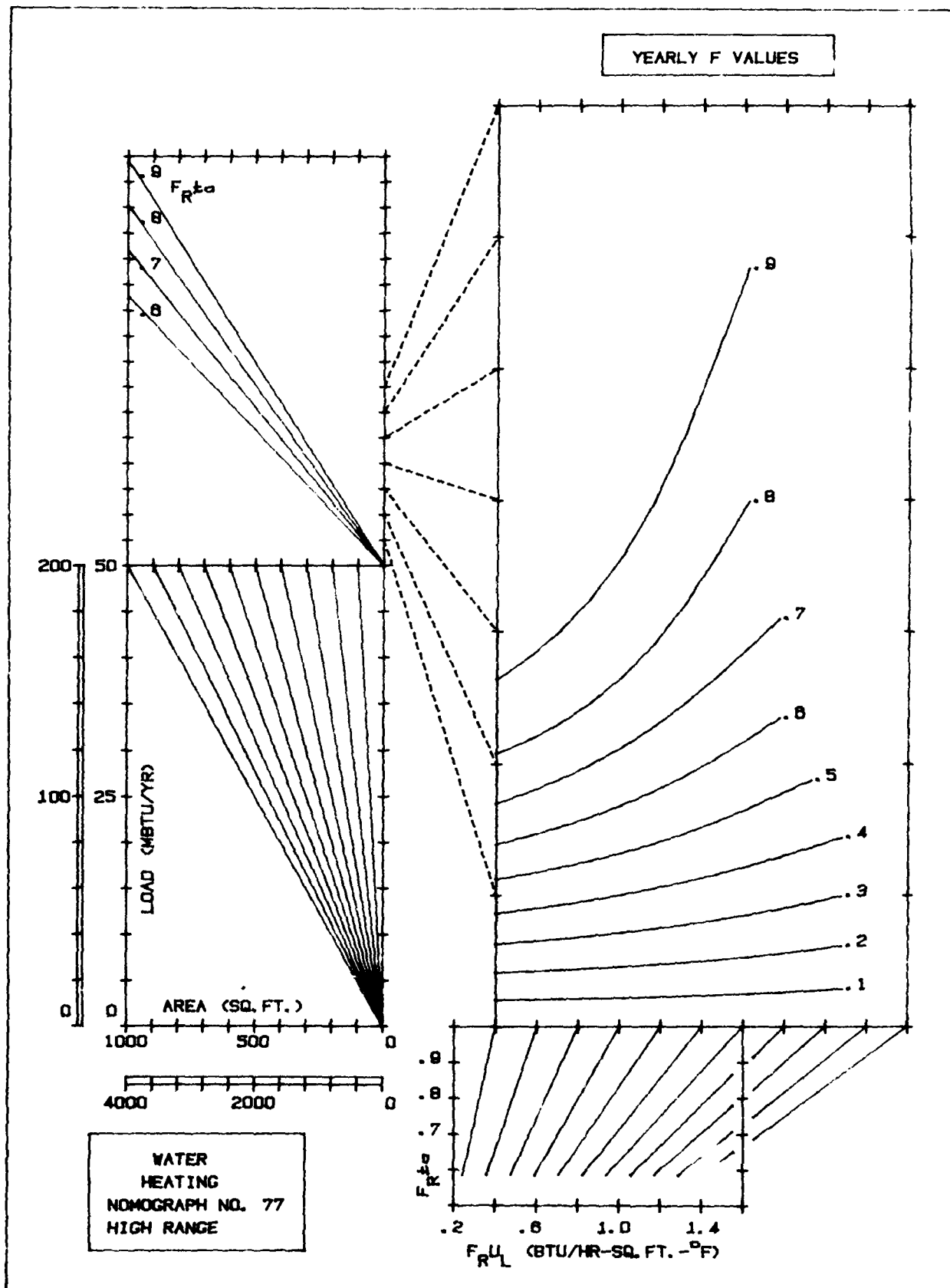


PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

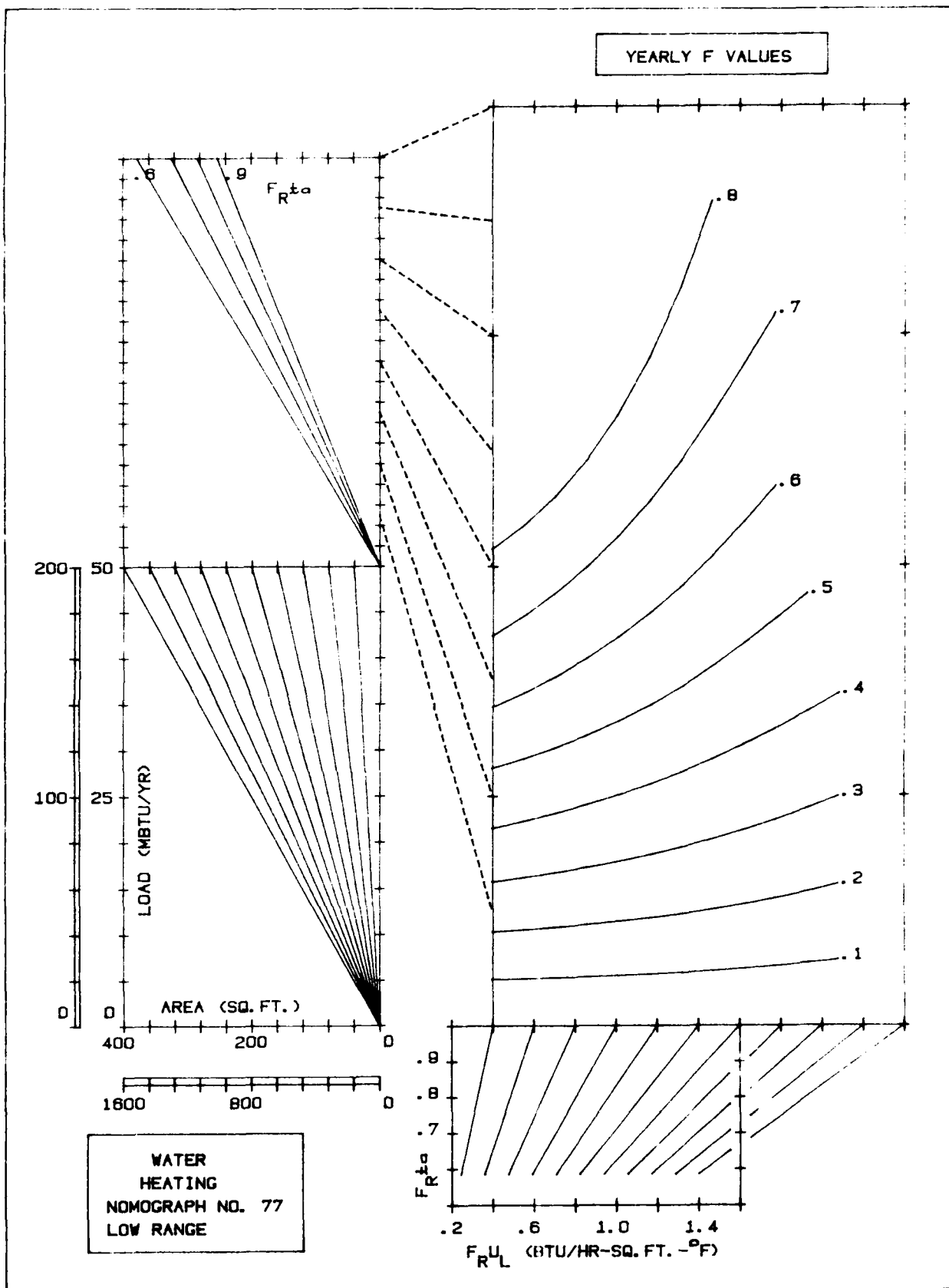
C121



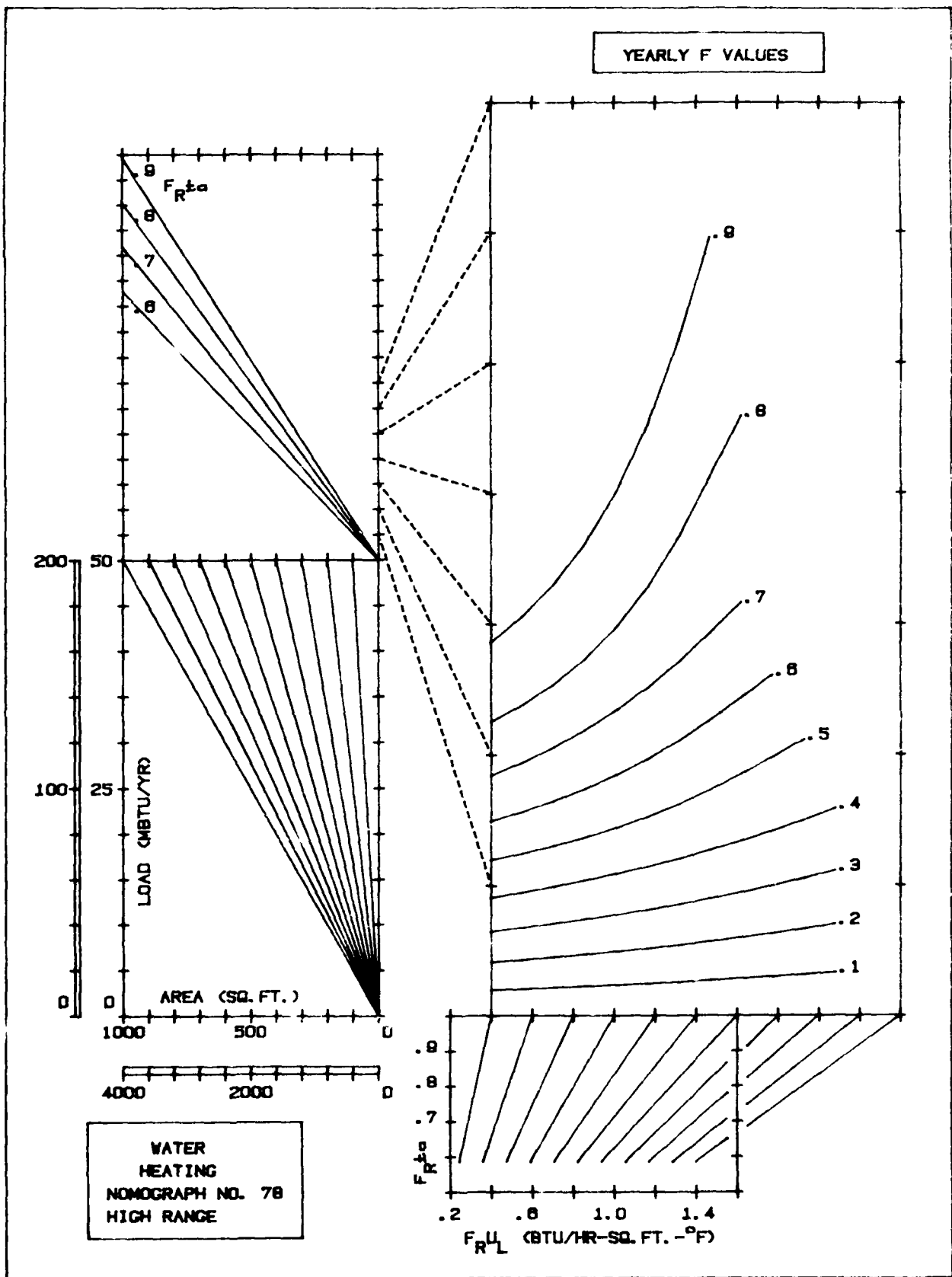
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS



PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS

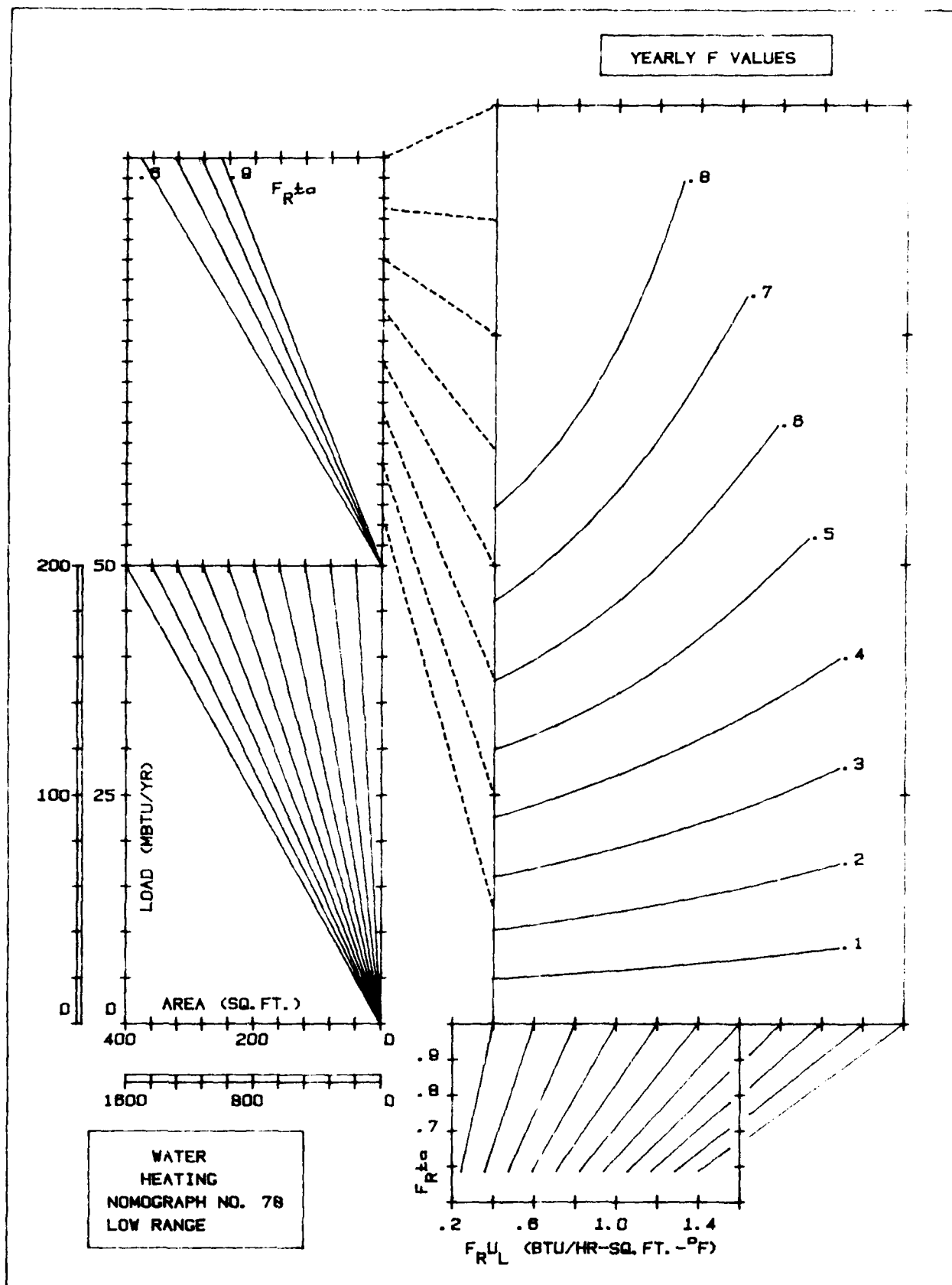


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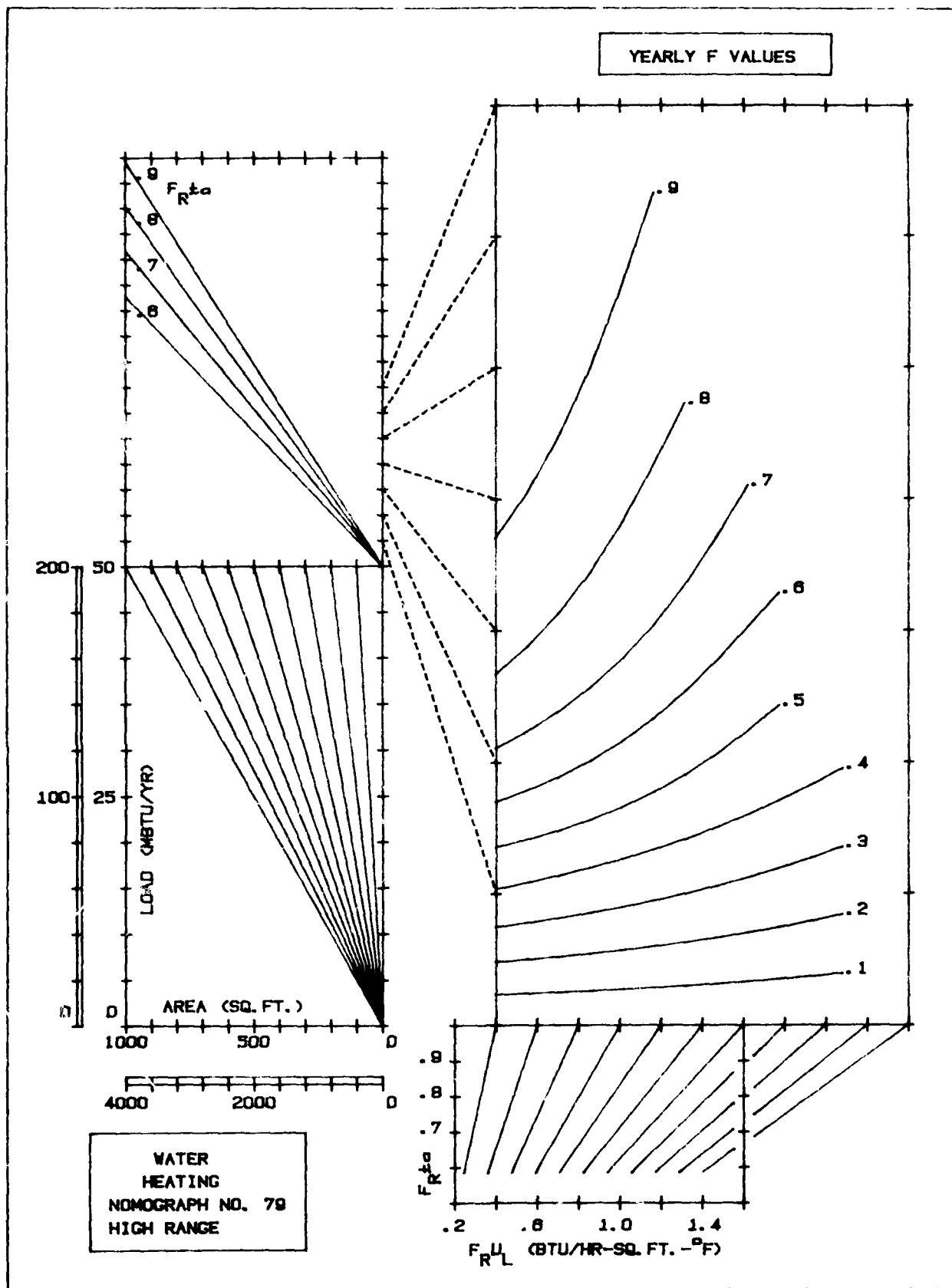


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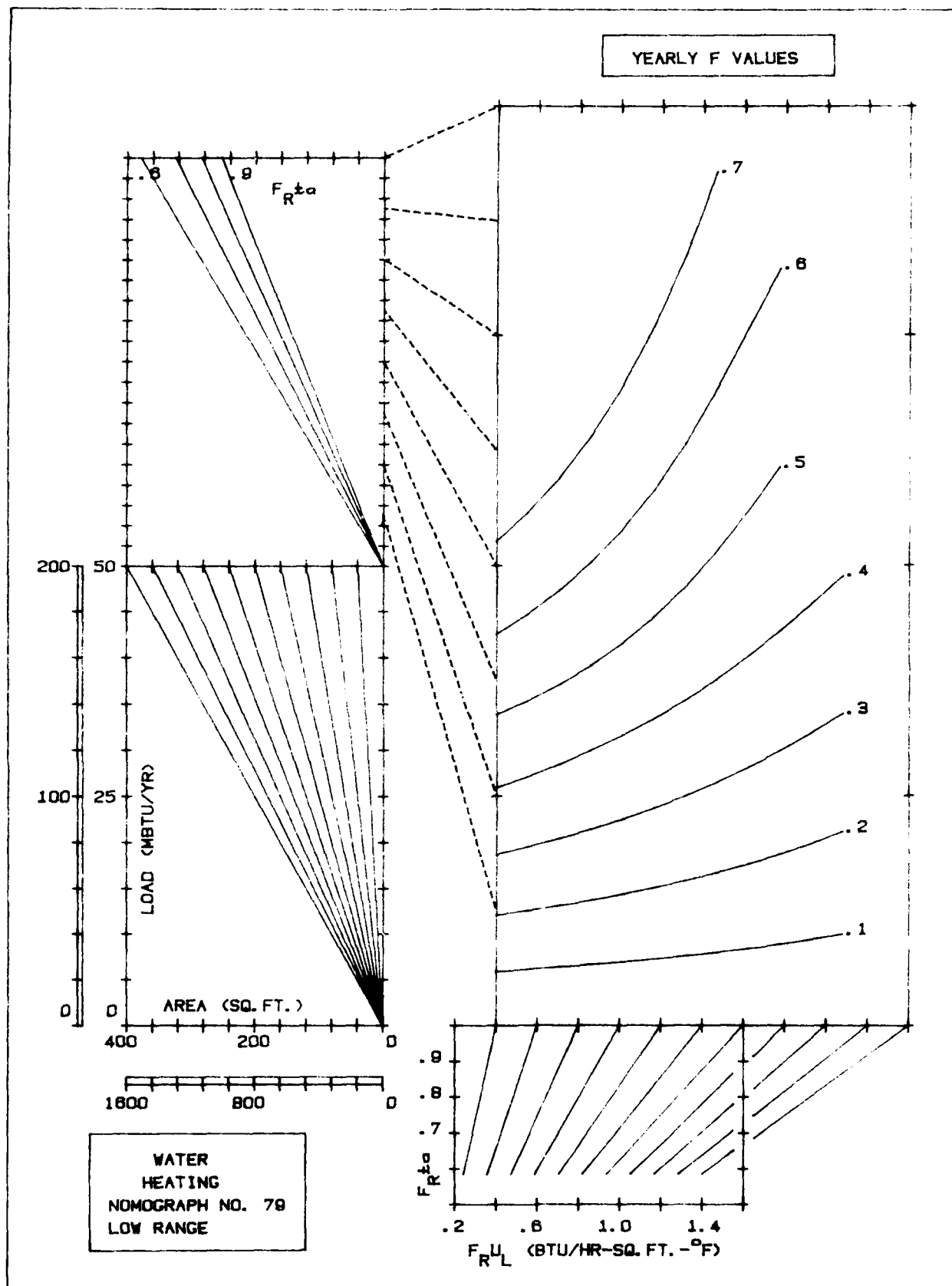
C125



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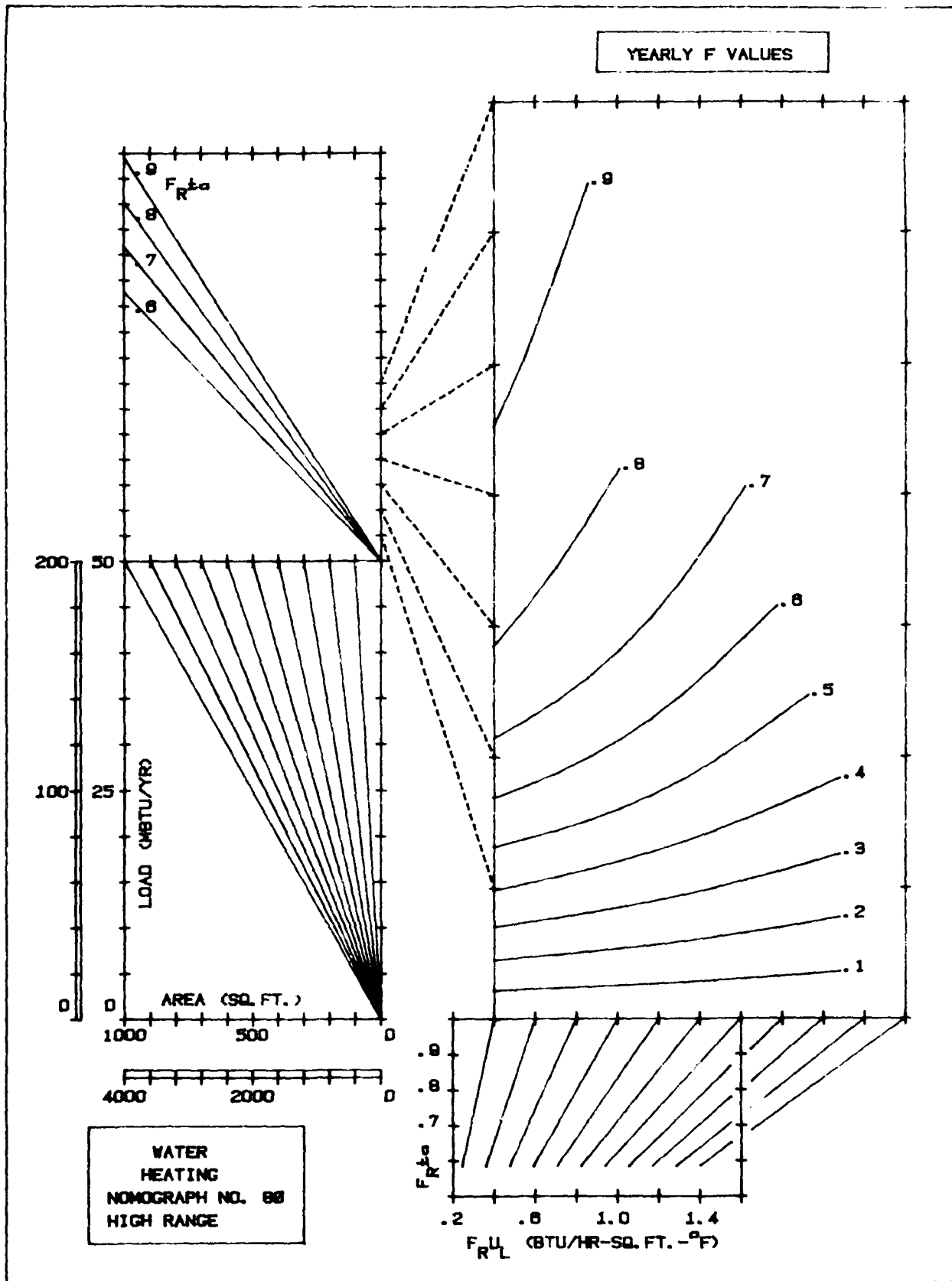


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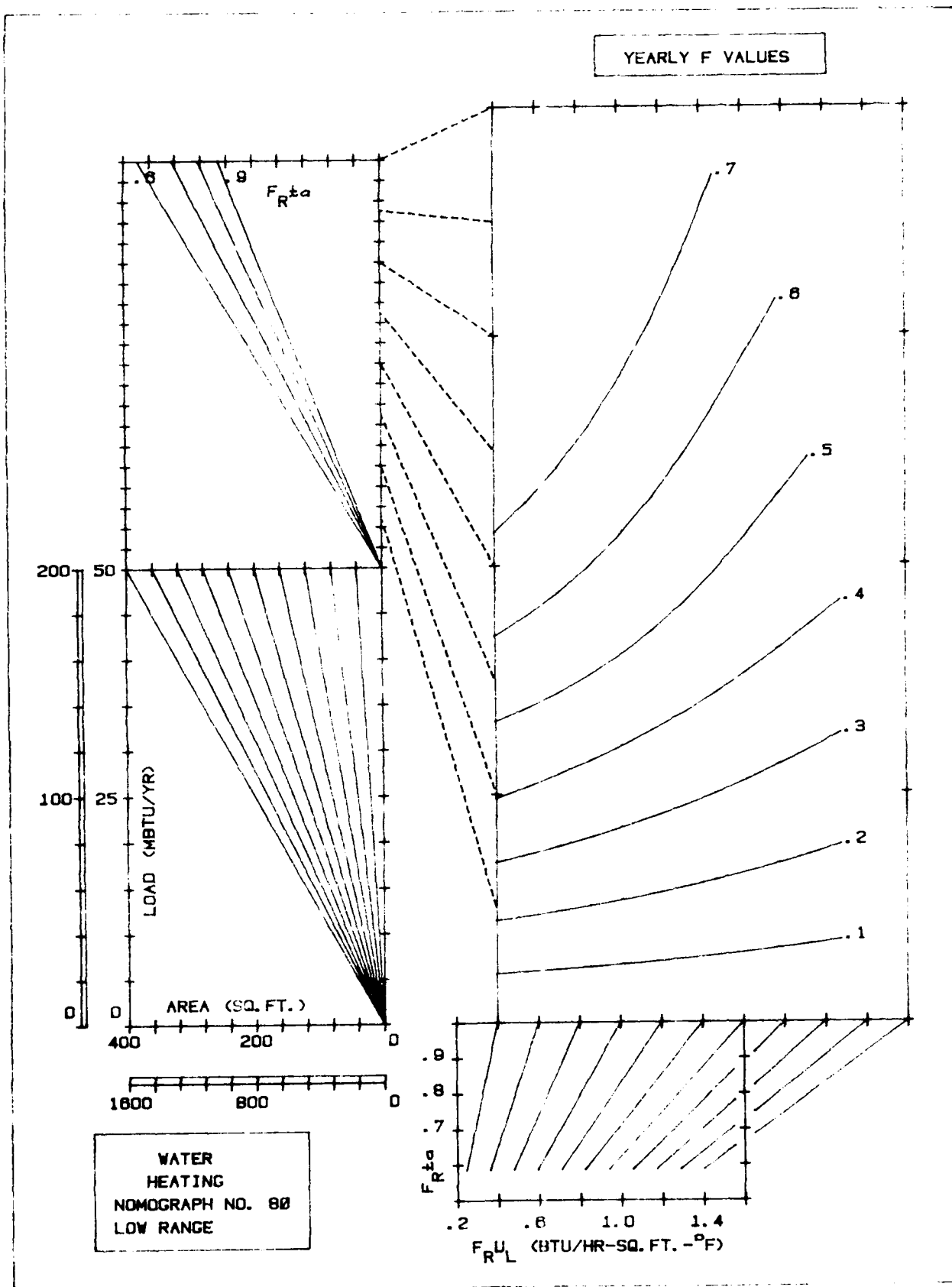


PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C128

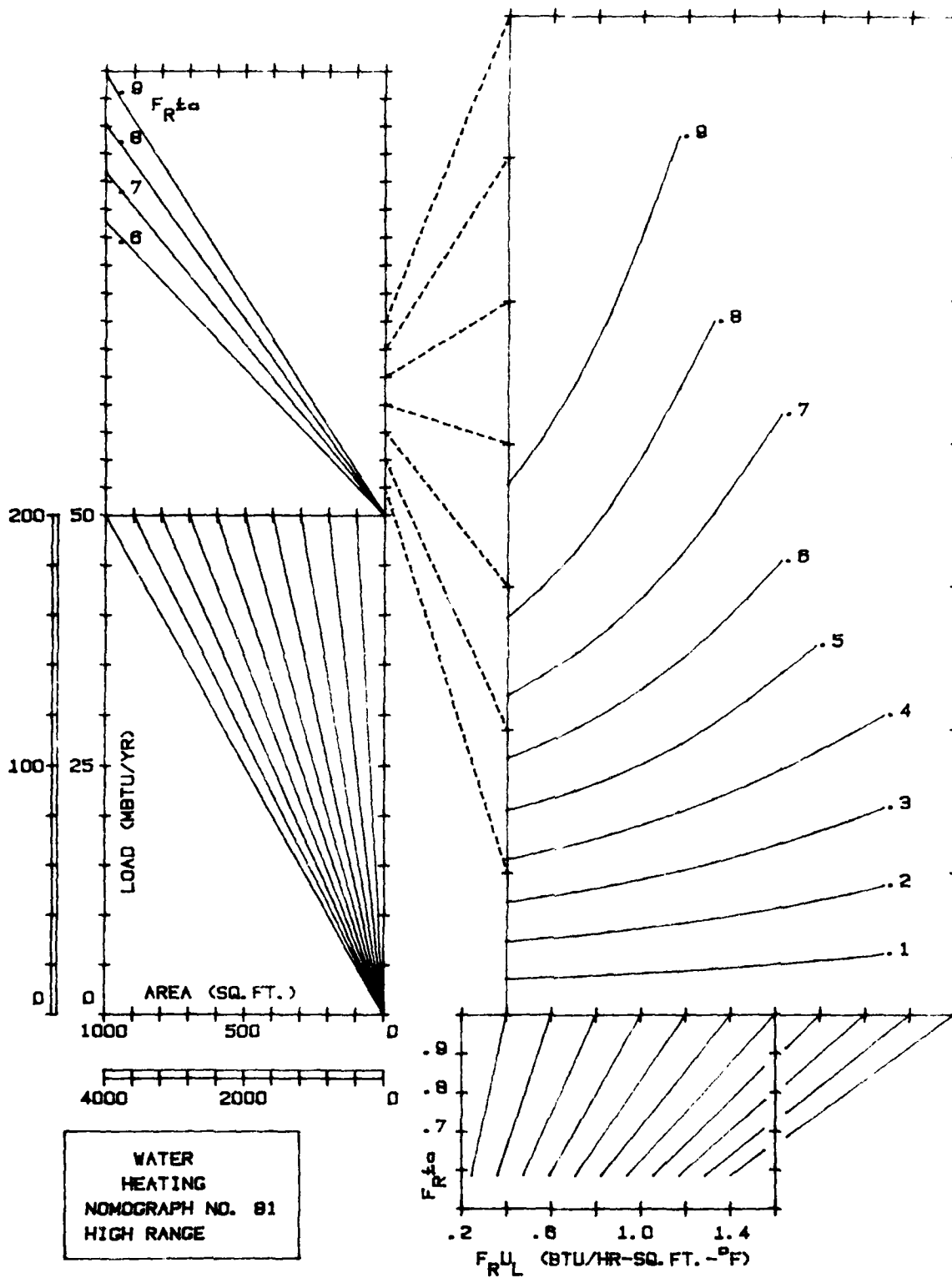


PREPARED 28 JUN 82 FOR AFESC BY USAFA/DFMS



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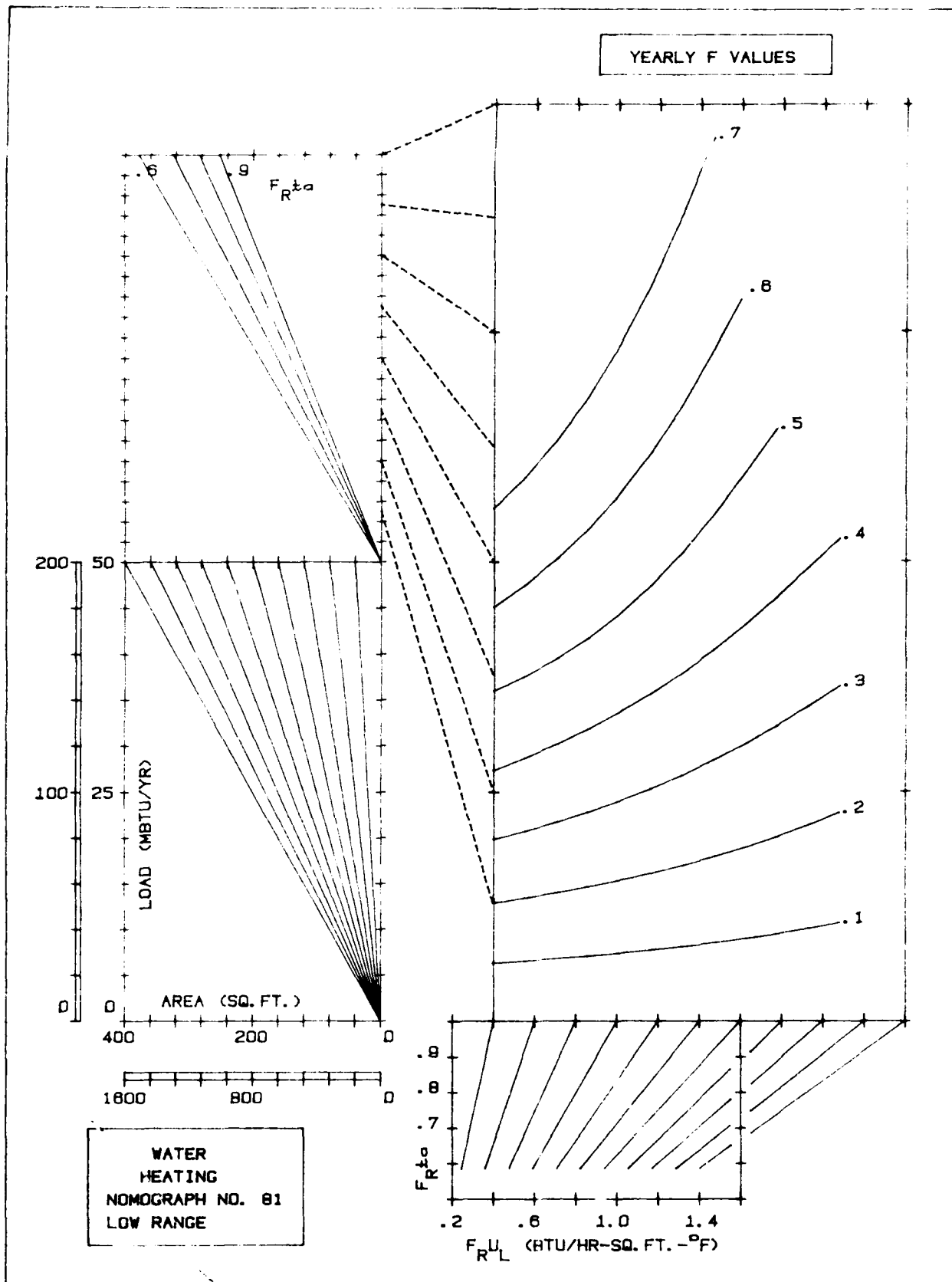
YEARLY F VALUES



WATER
HEATING
NOMOGRAPH NO. 81
HIGH RANGE

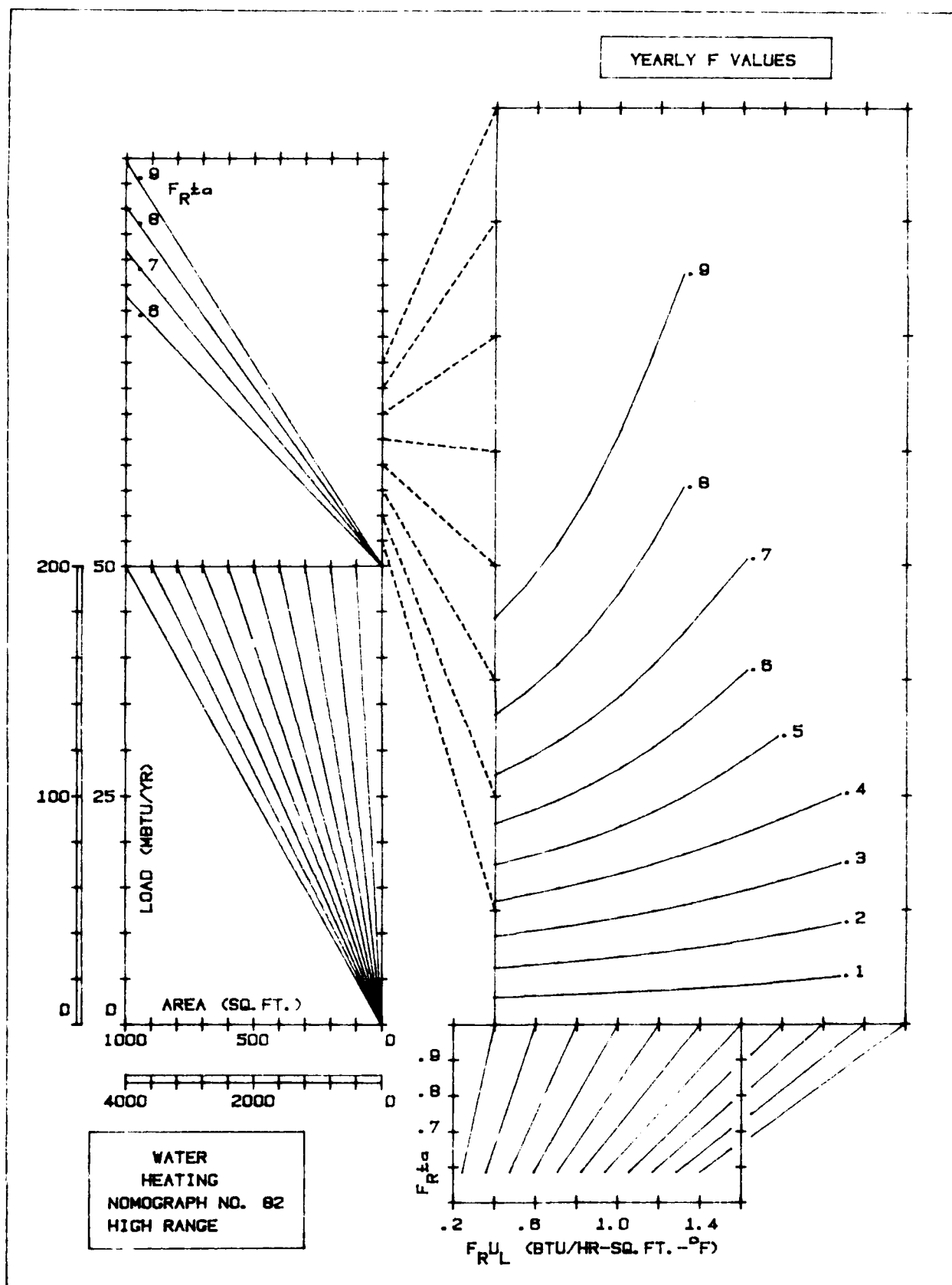
PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C131



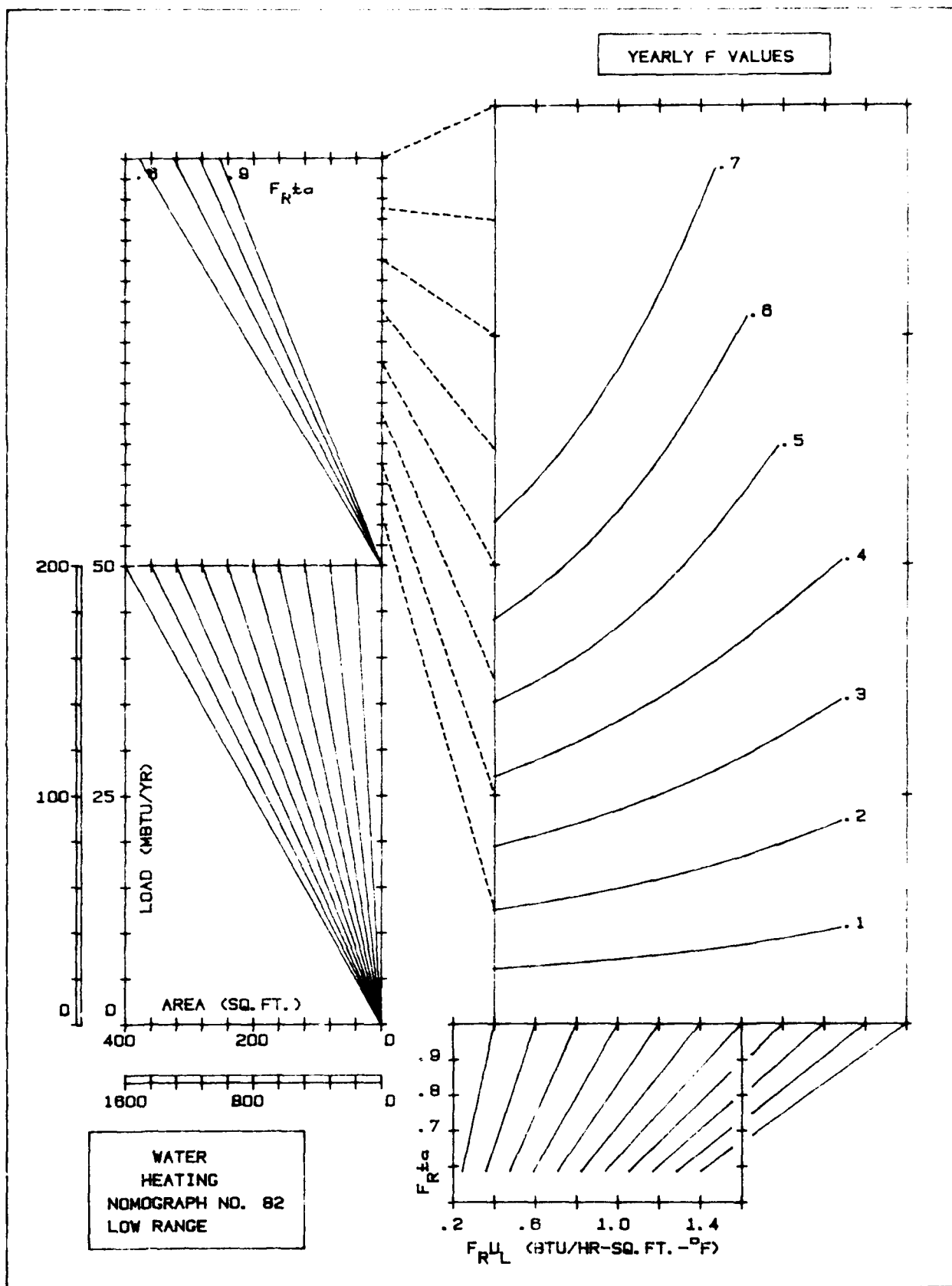
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C132



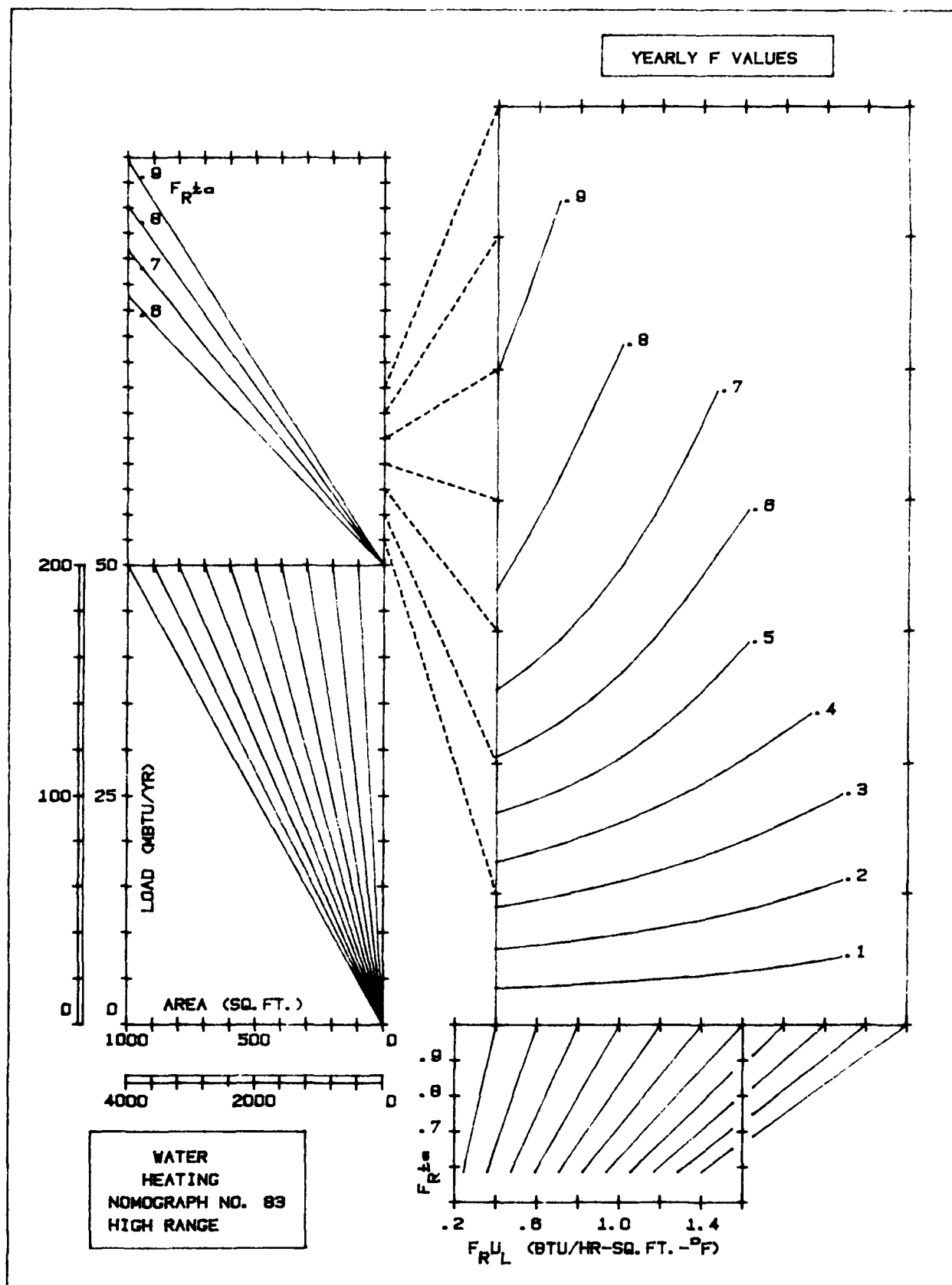
PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C133



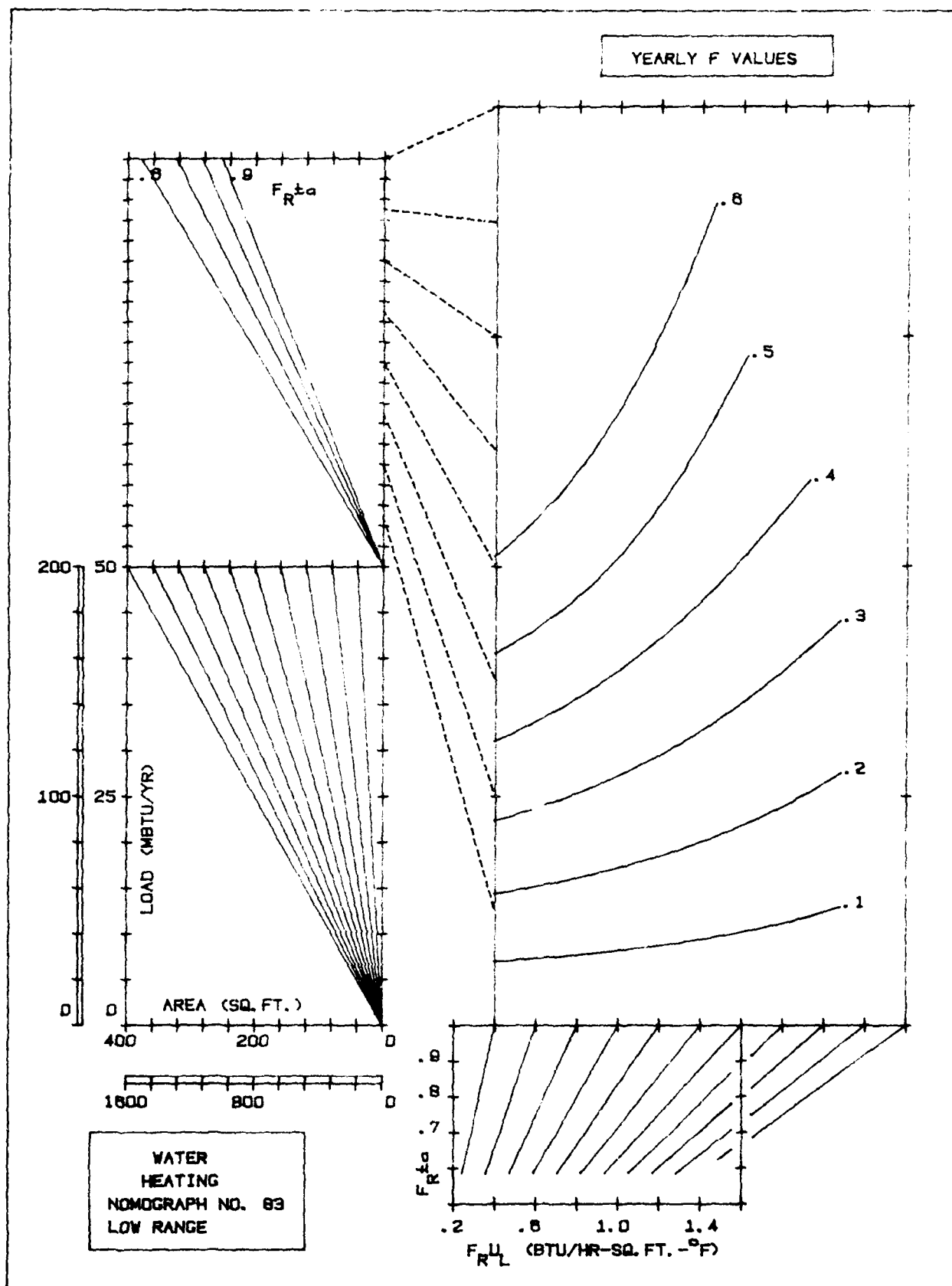
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C134



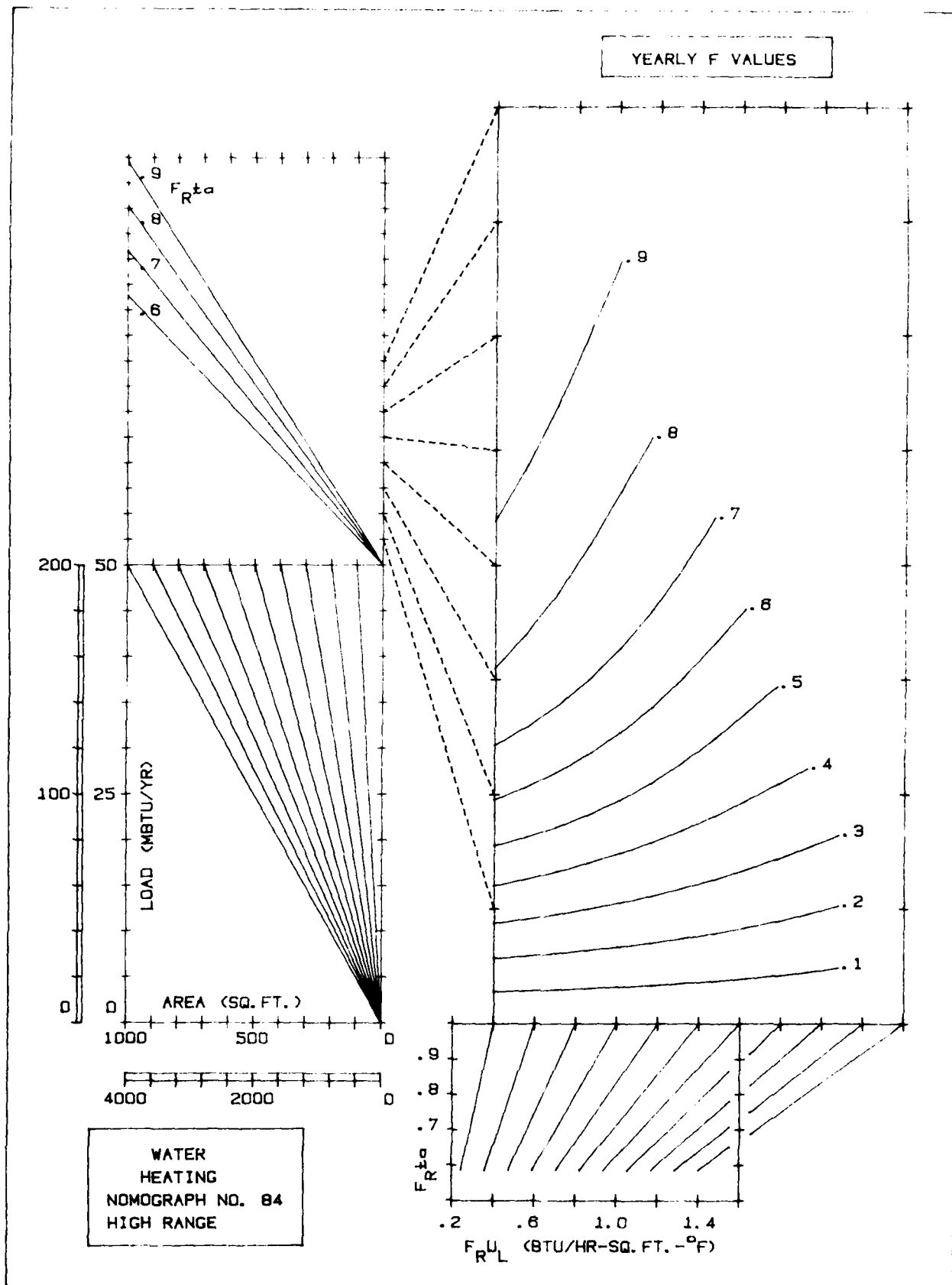
PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C135



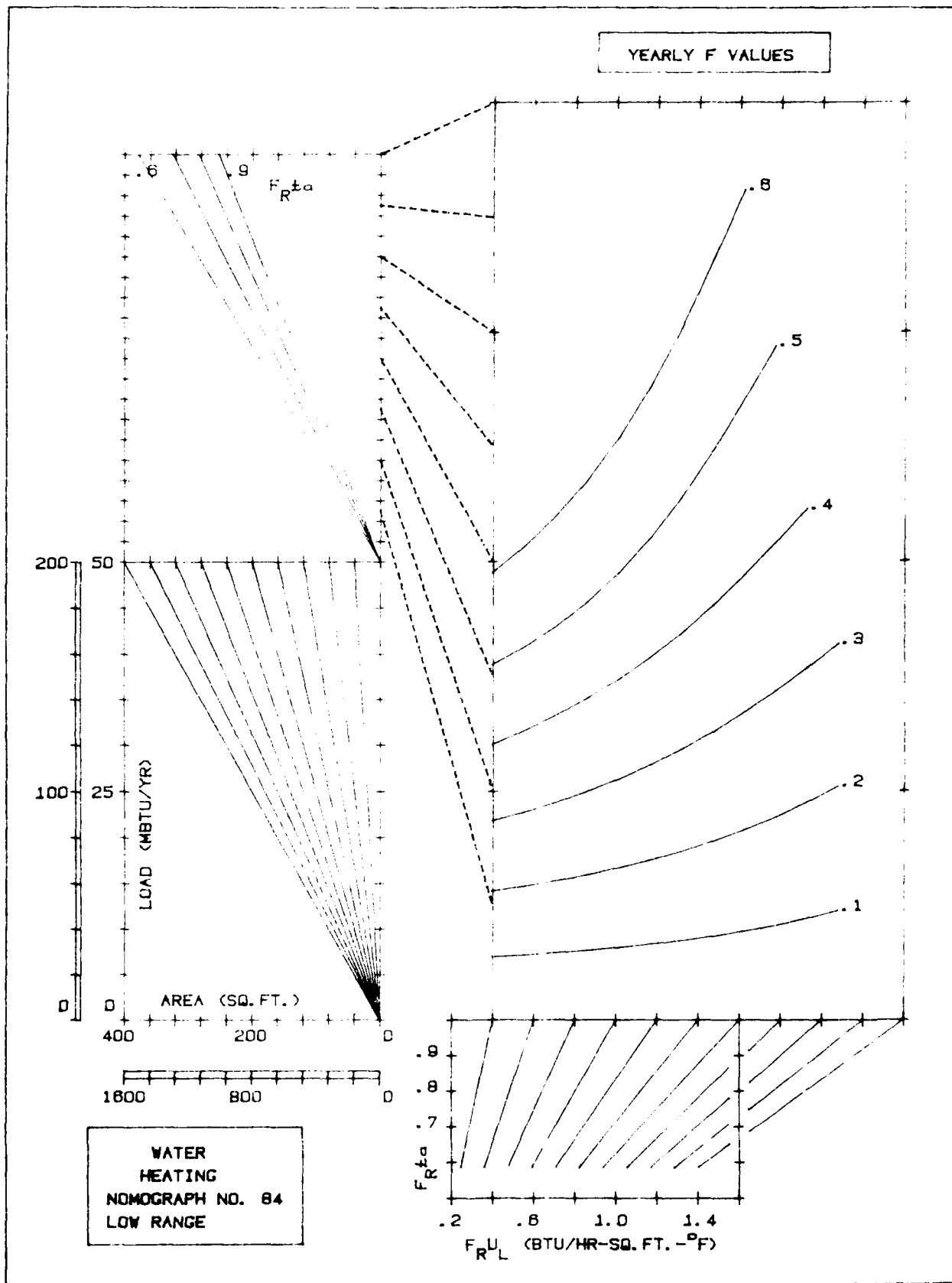
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C136



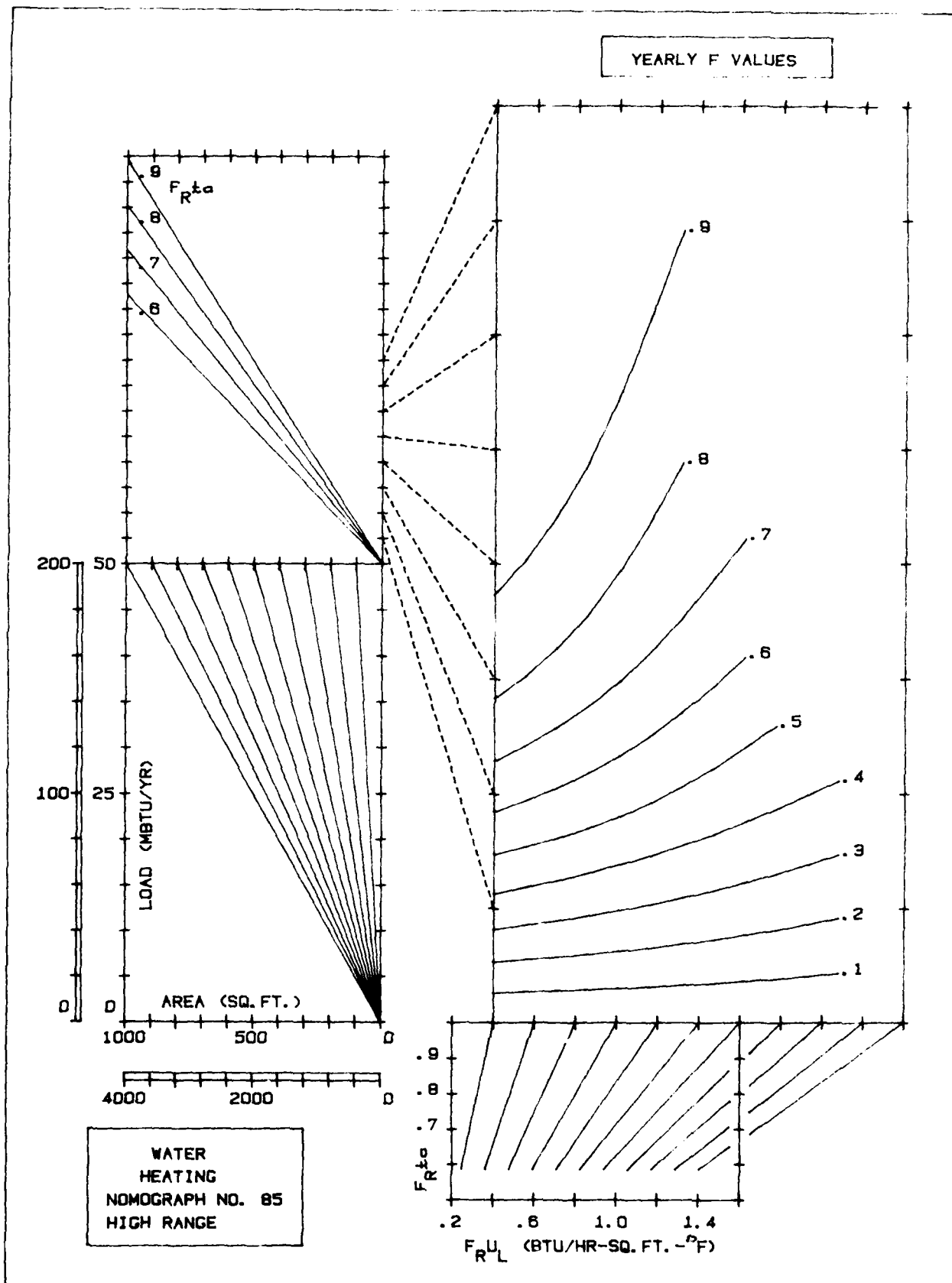
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C137



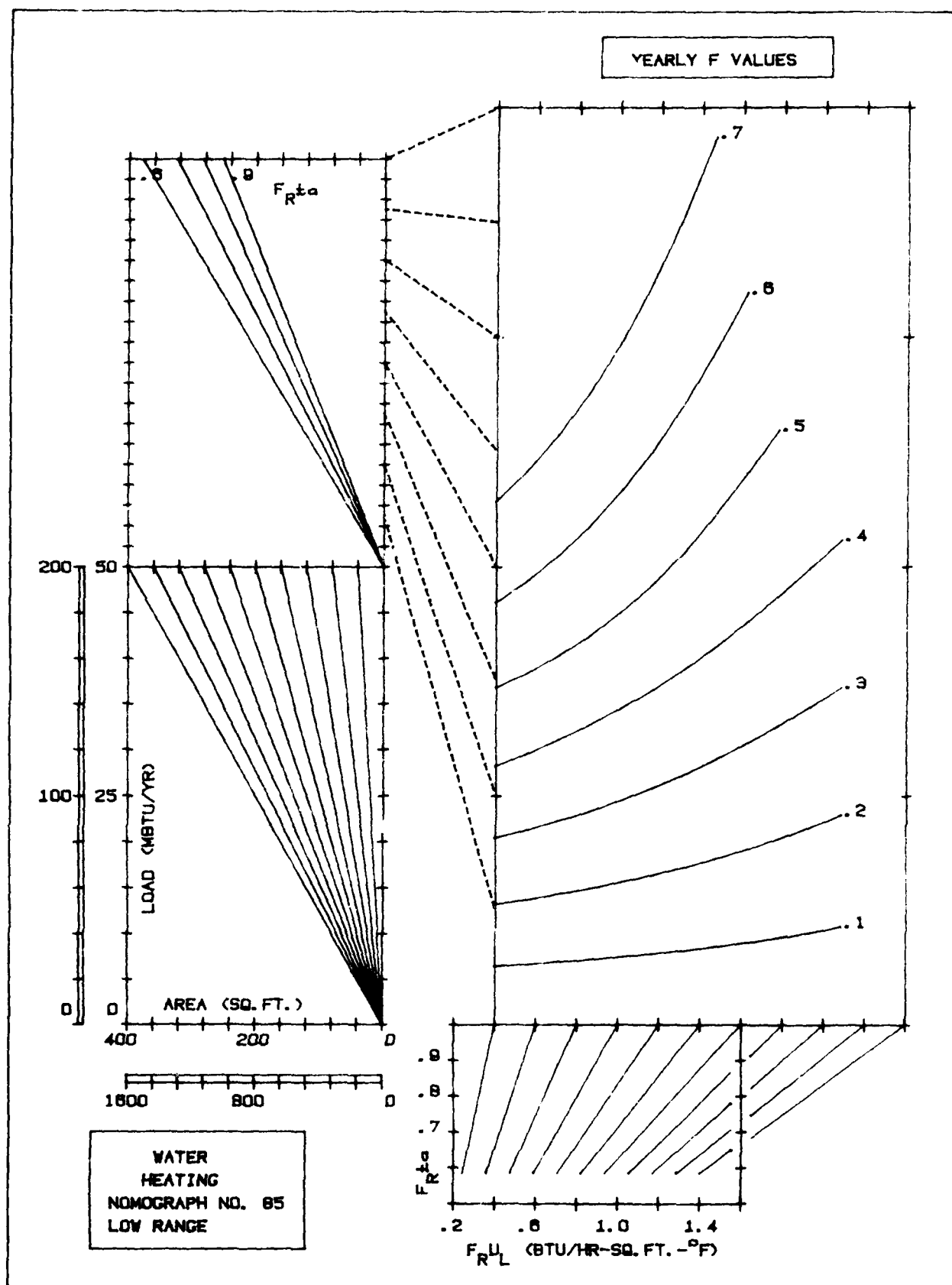
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

CL 38

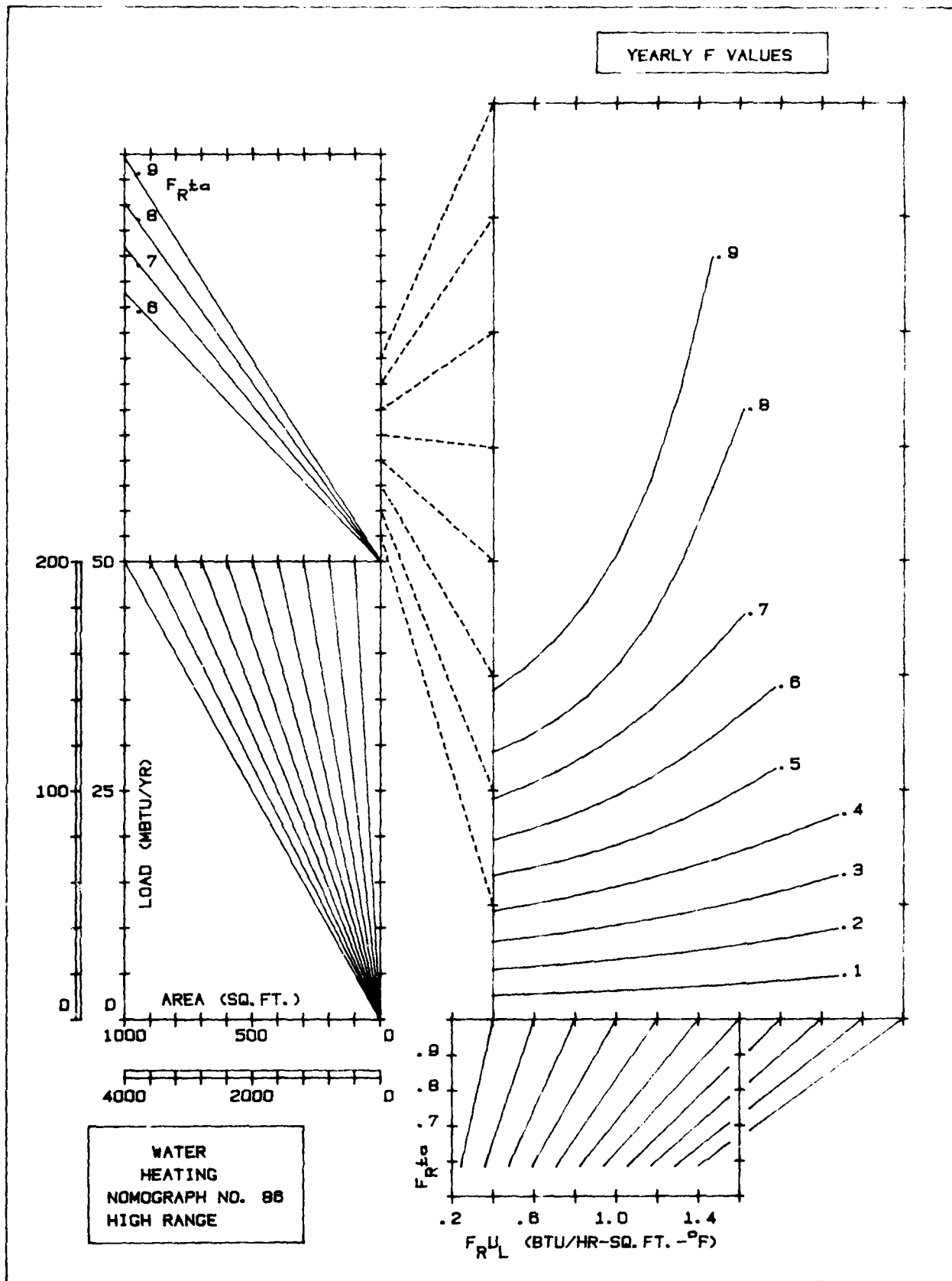


PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C139

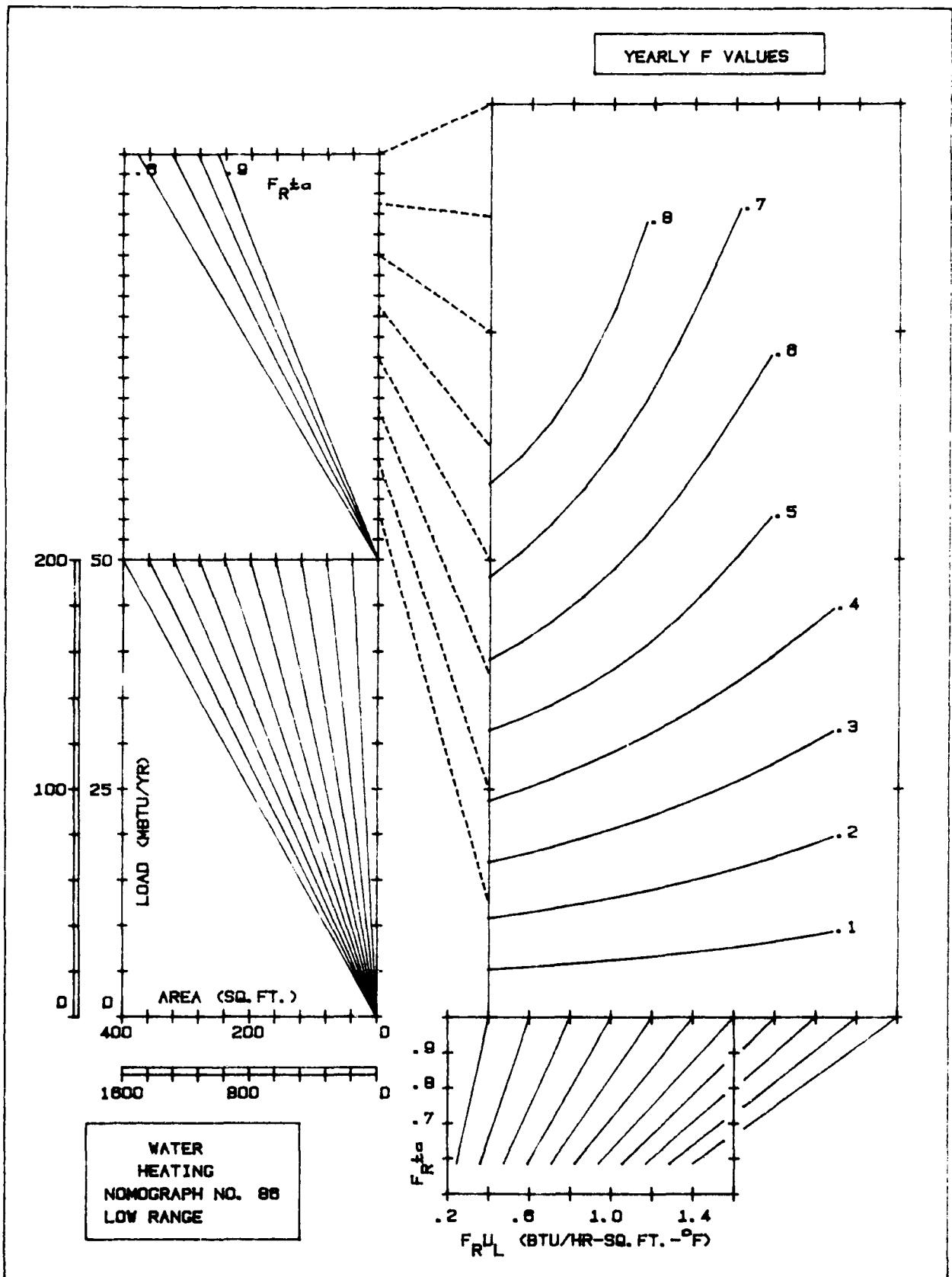


PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

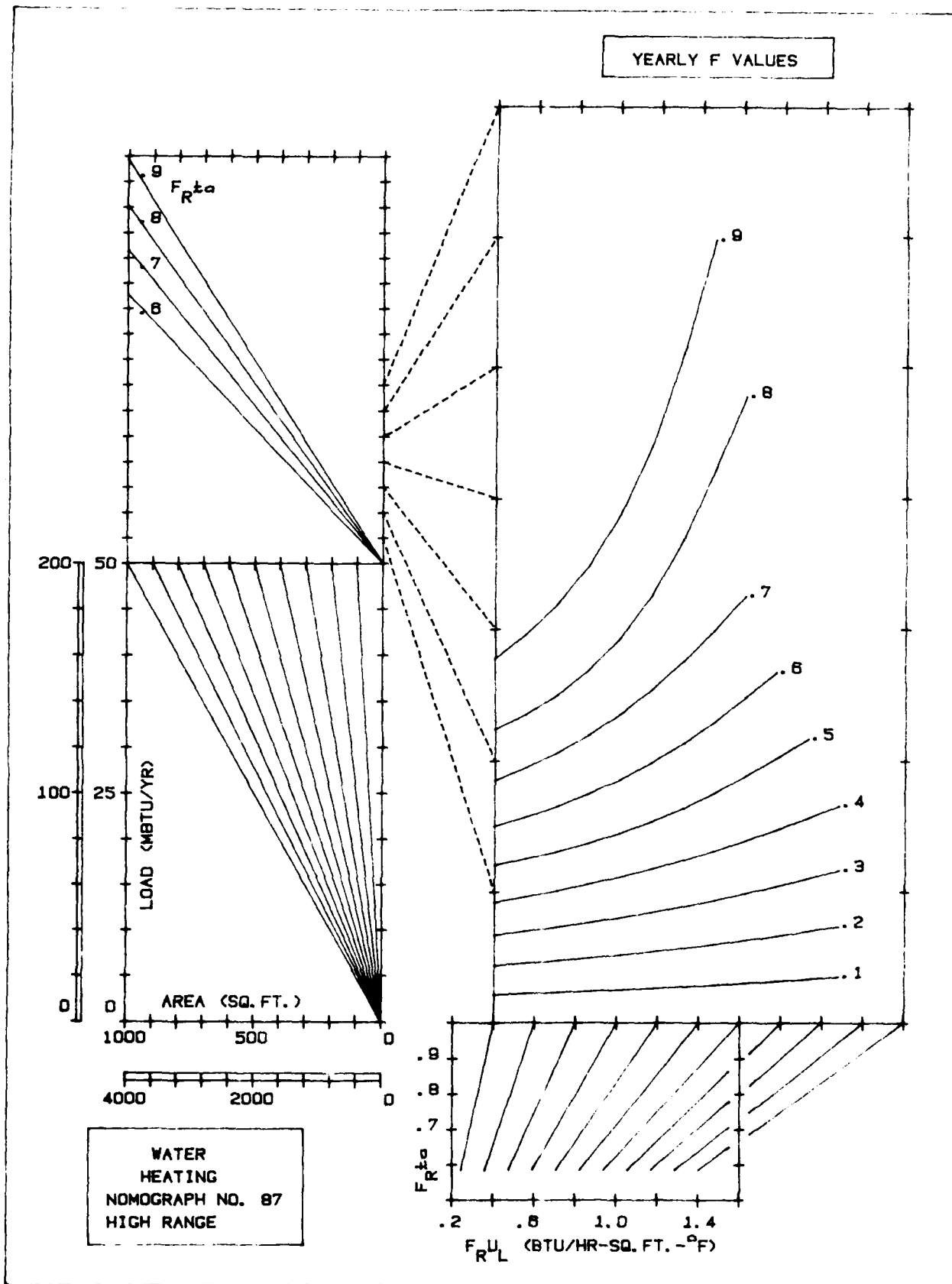


PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C141

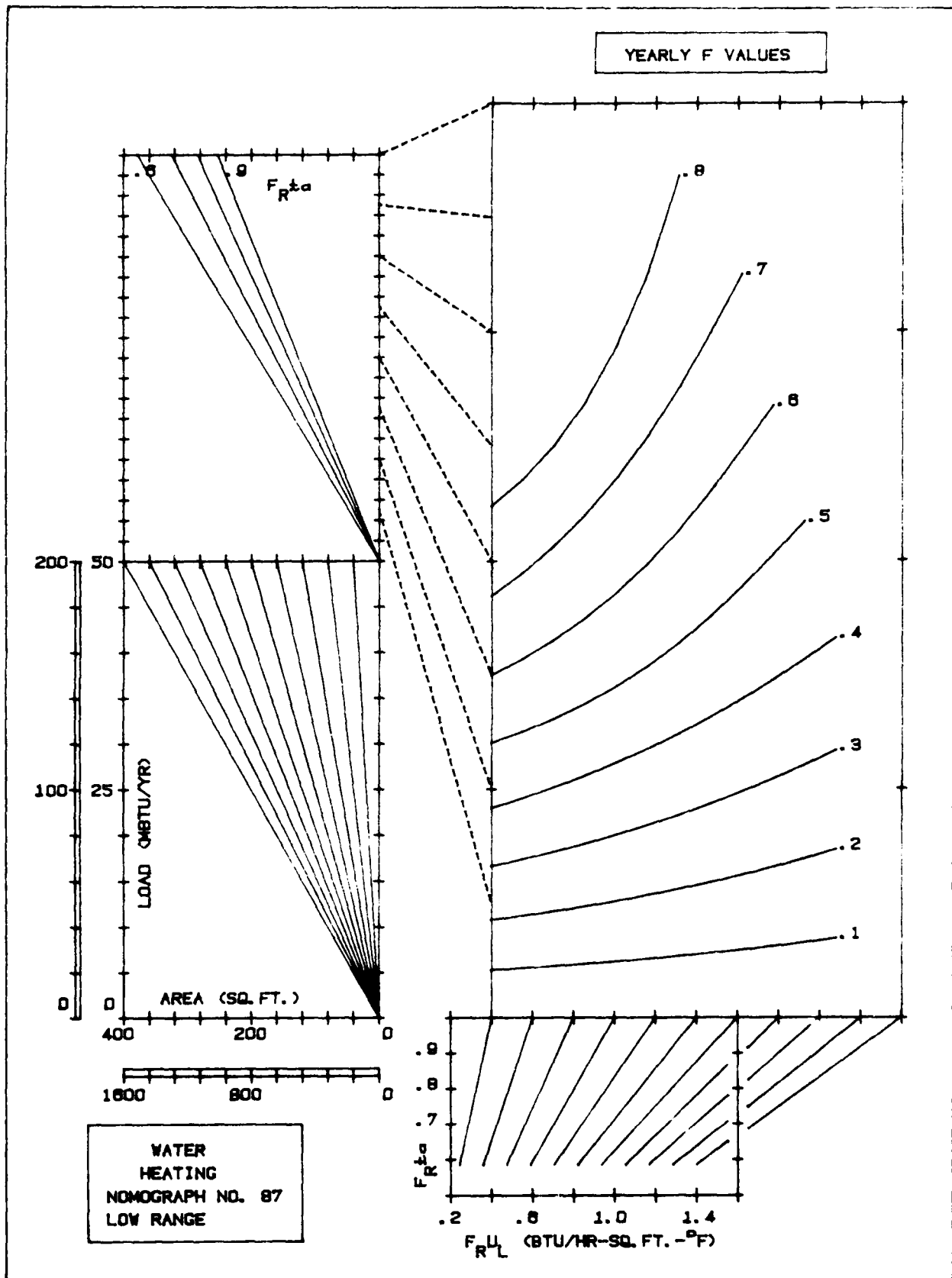


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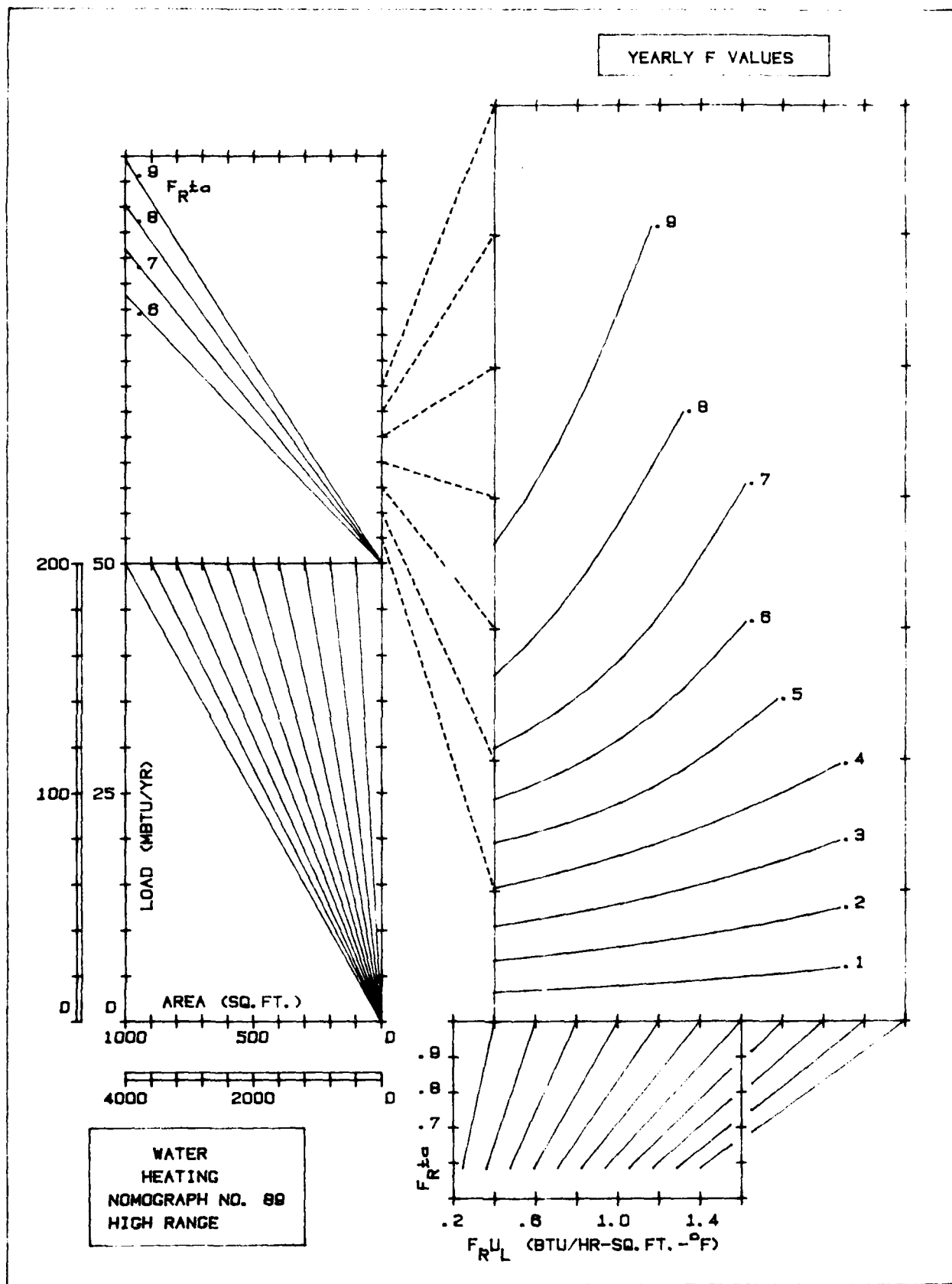
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C143



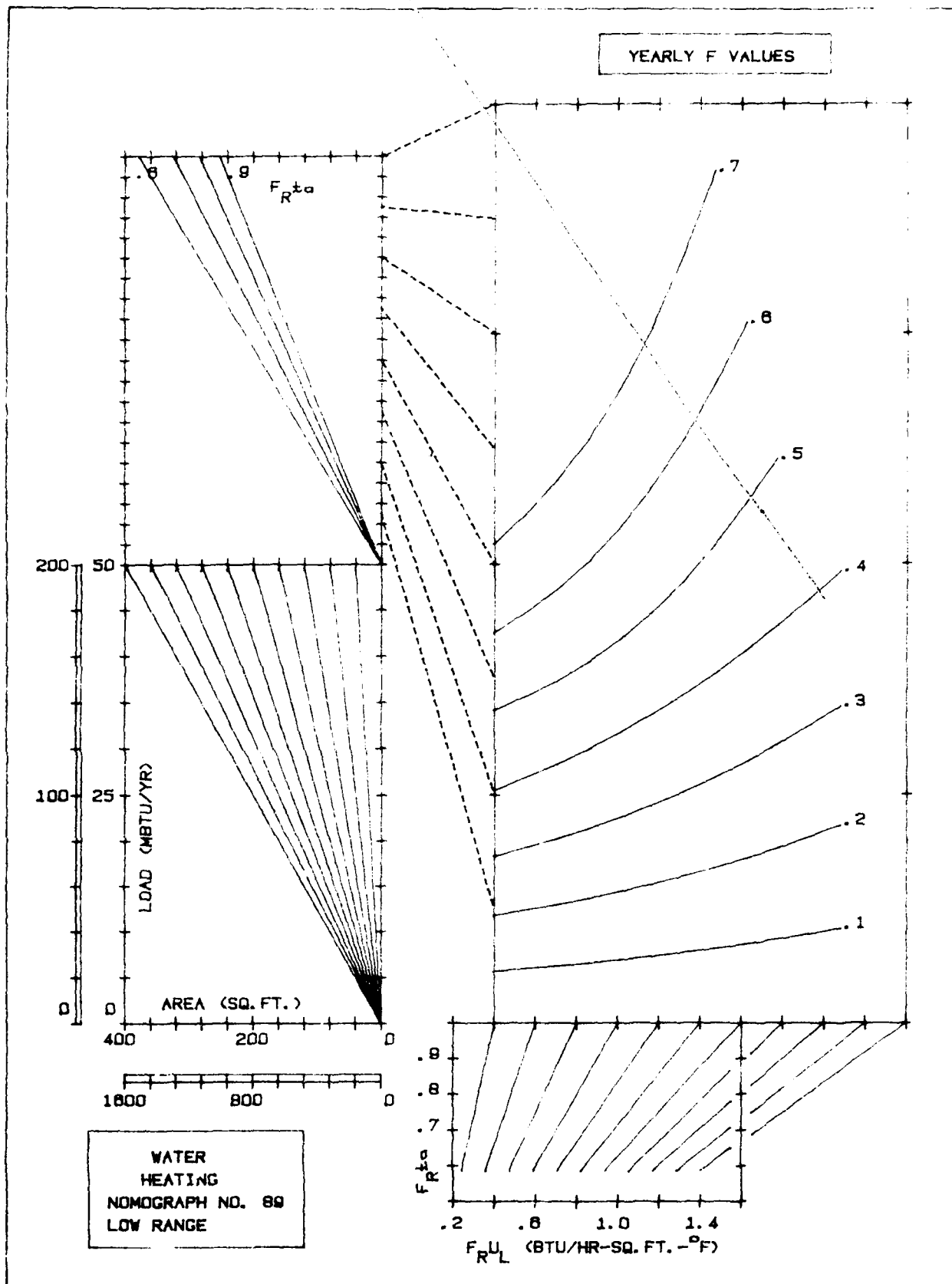
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C144

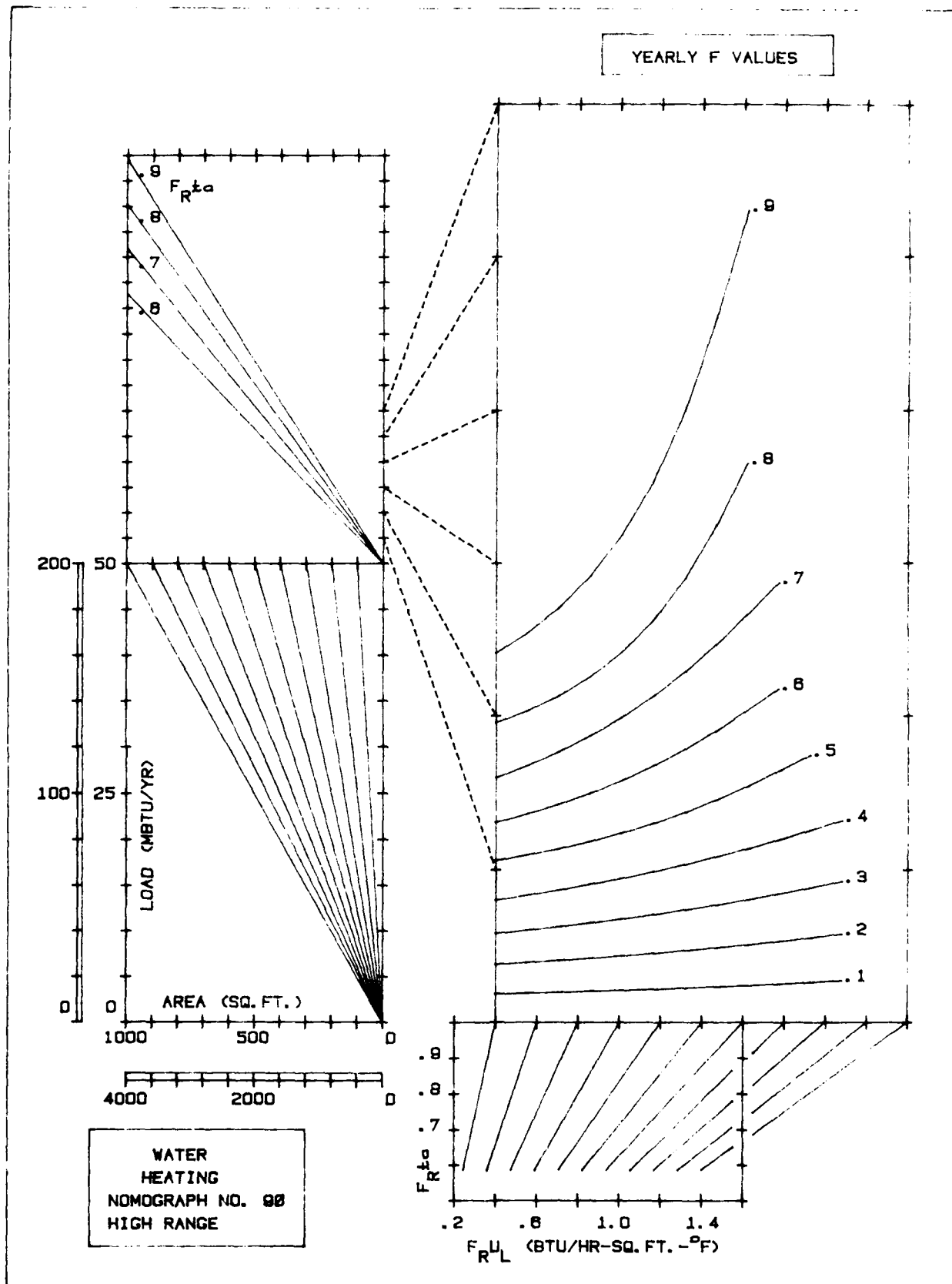


PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C145

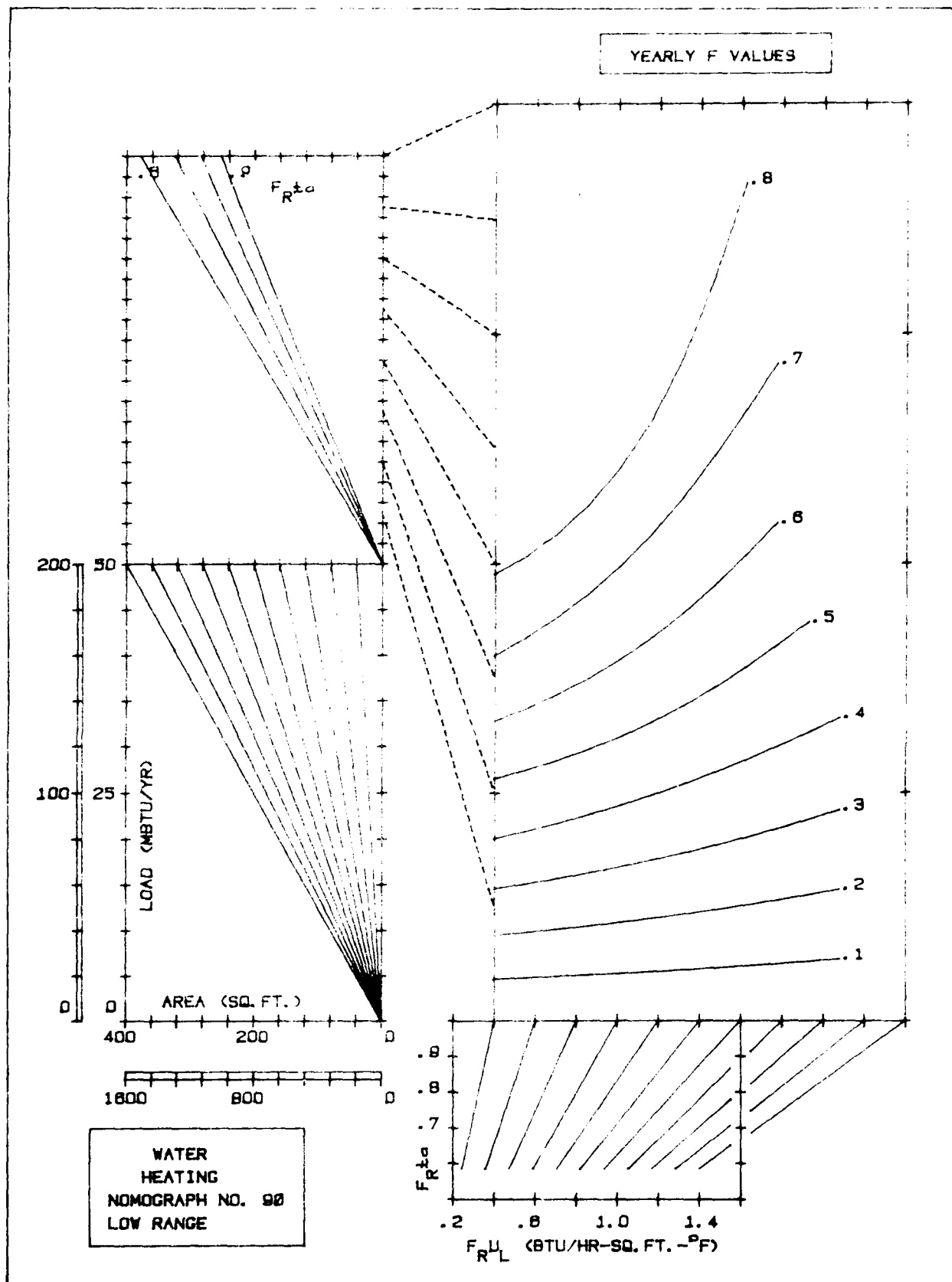


PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS



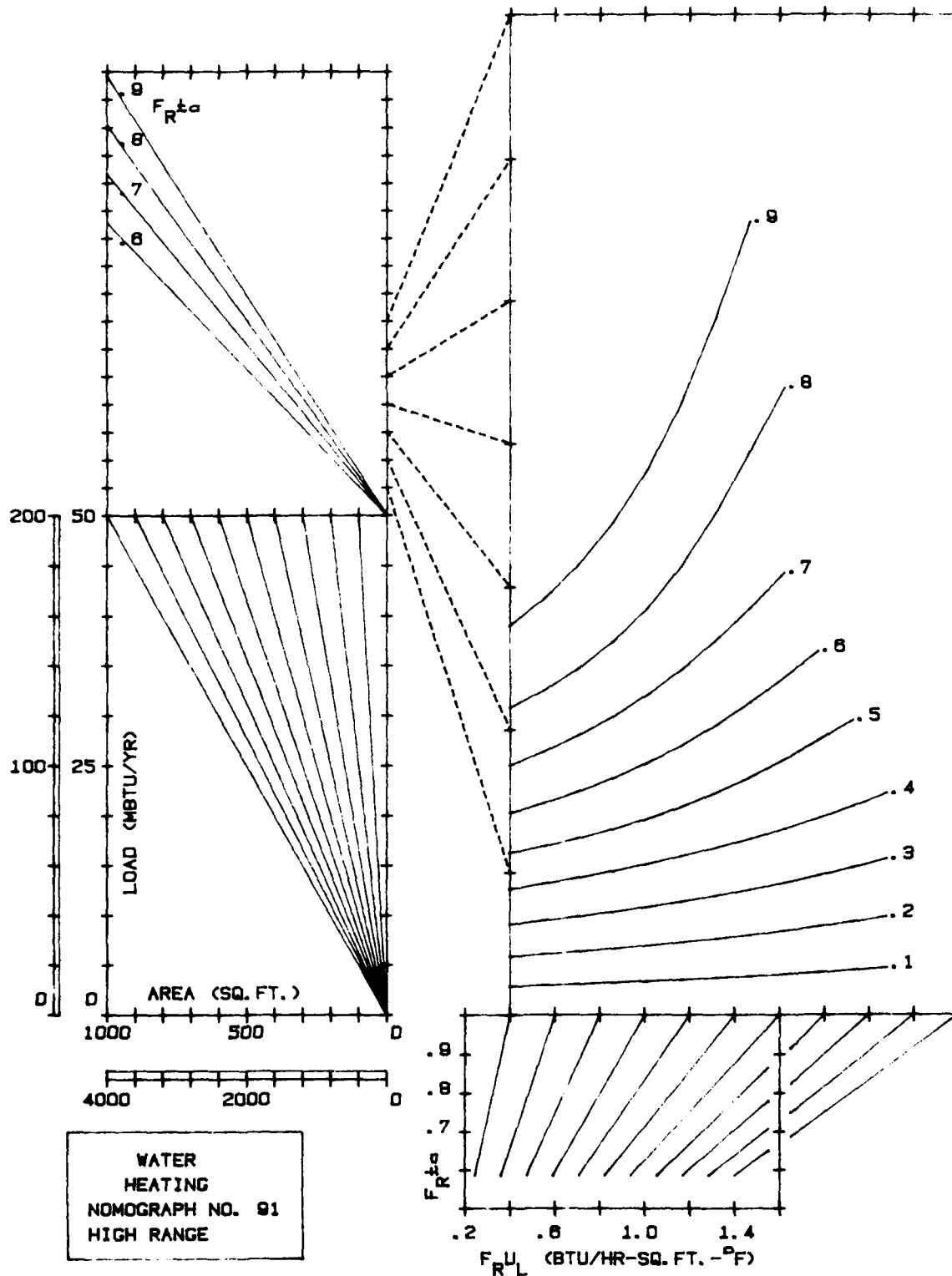
PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C147



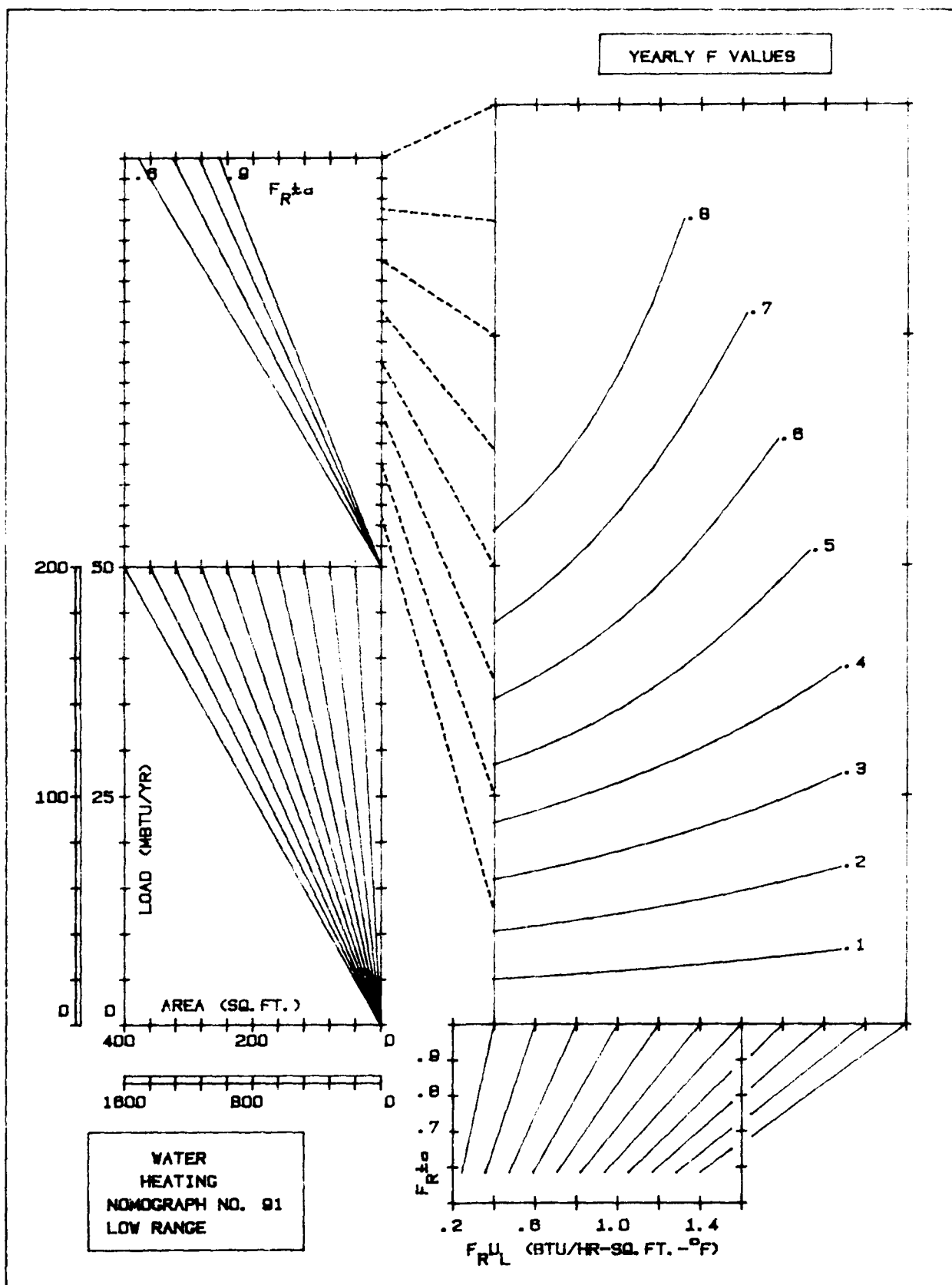
PREPARED 15 JUL 82 FOR AFE9C BY USAFA/DFMS

YEARLY F VALUES

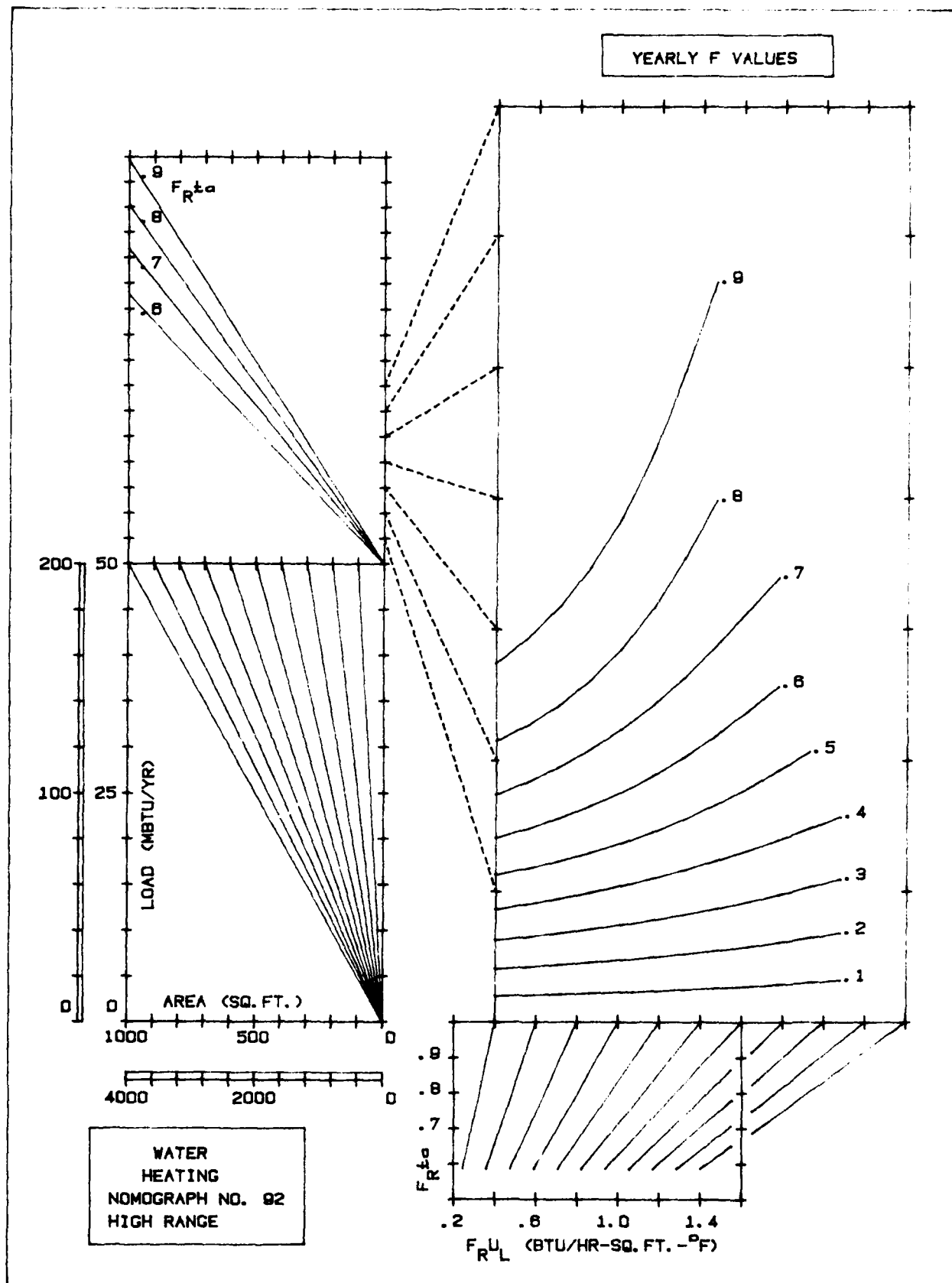


PREPARED 29 JUN 62 FOR AFESC BY USAFA/DFMS

C149

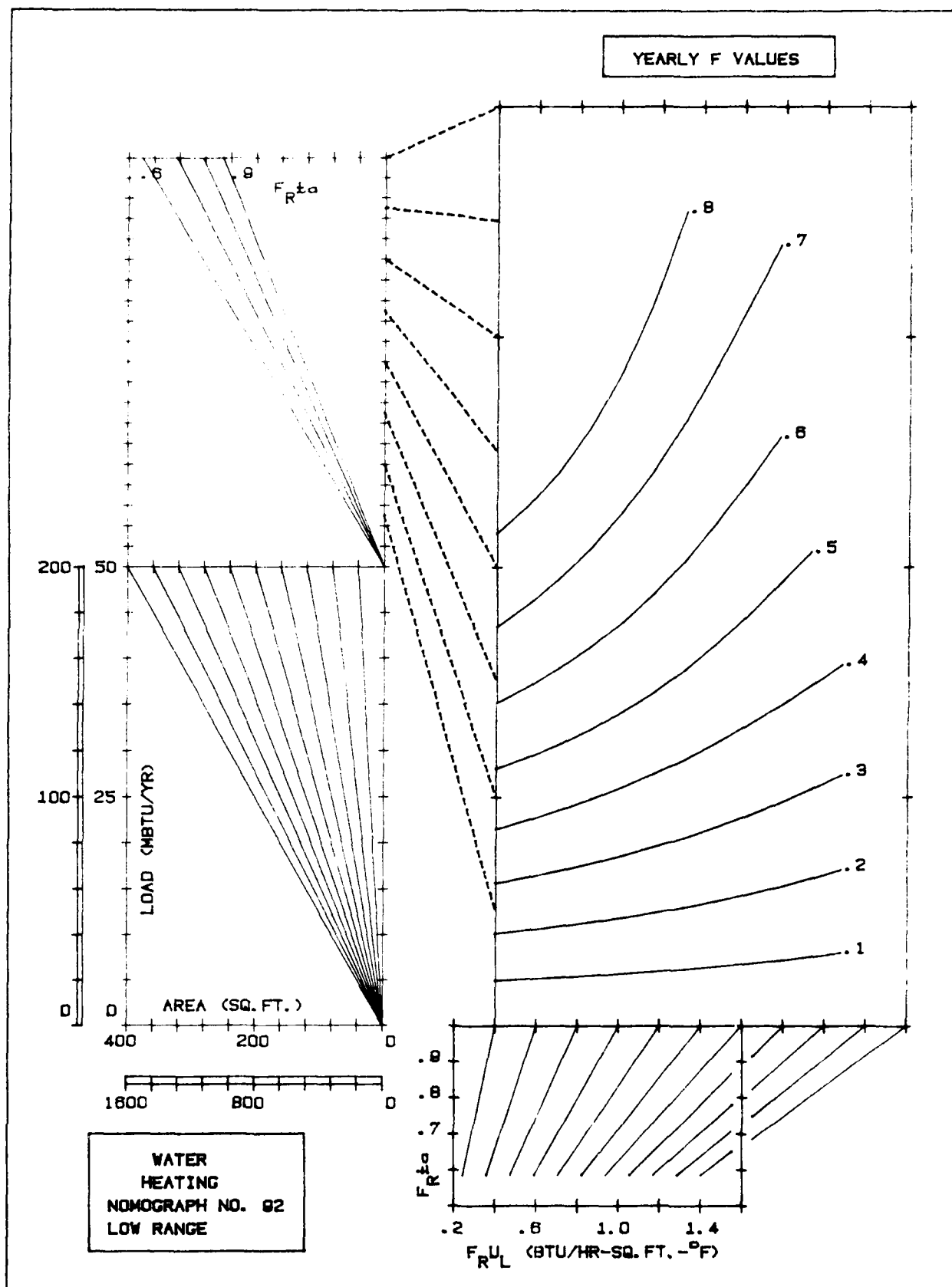


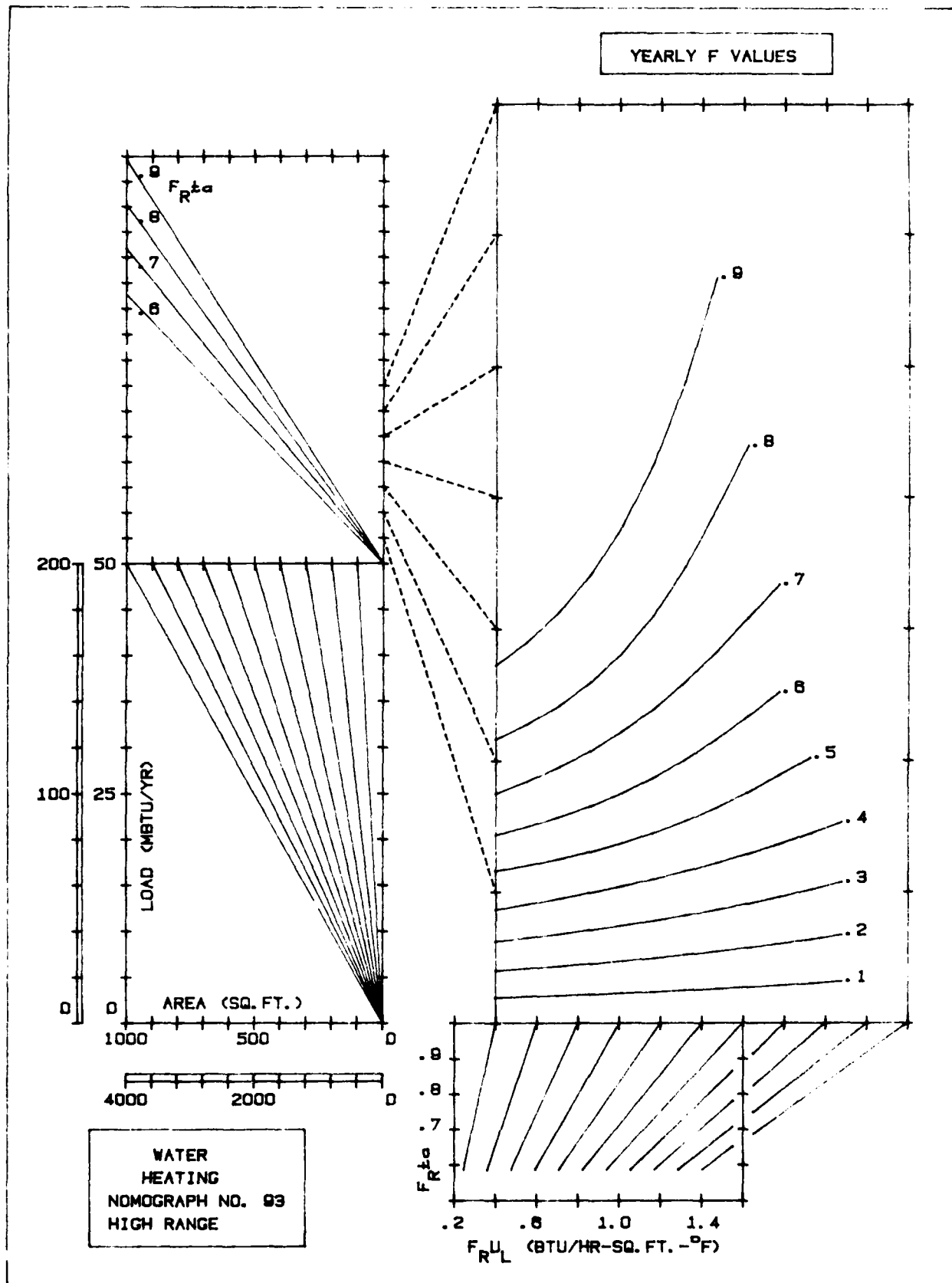
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS



PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

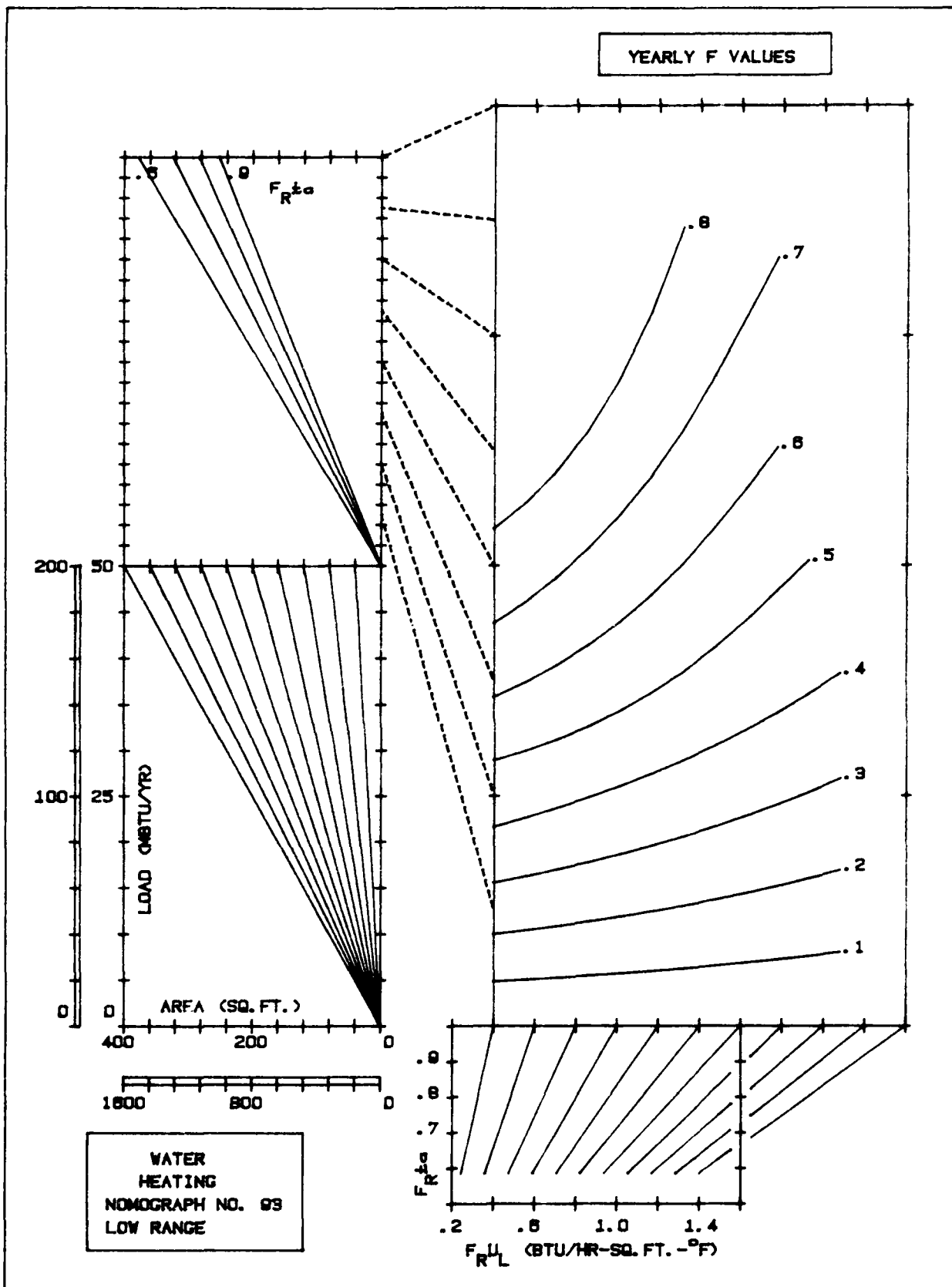
C151



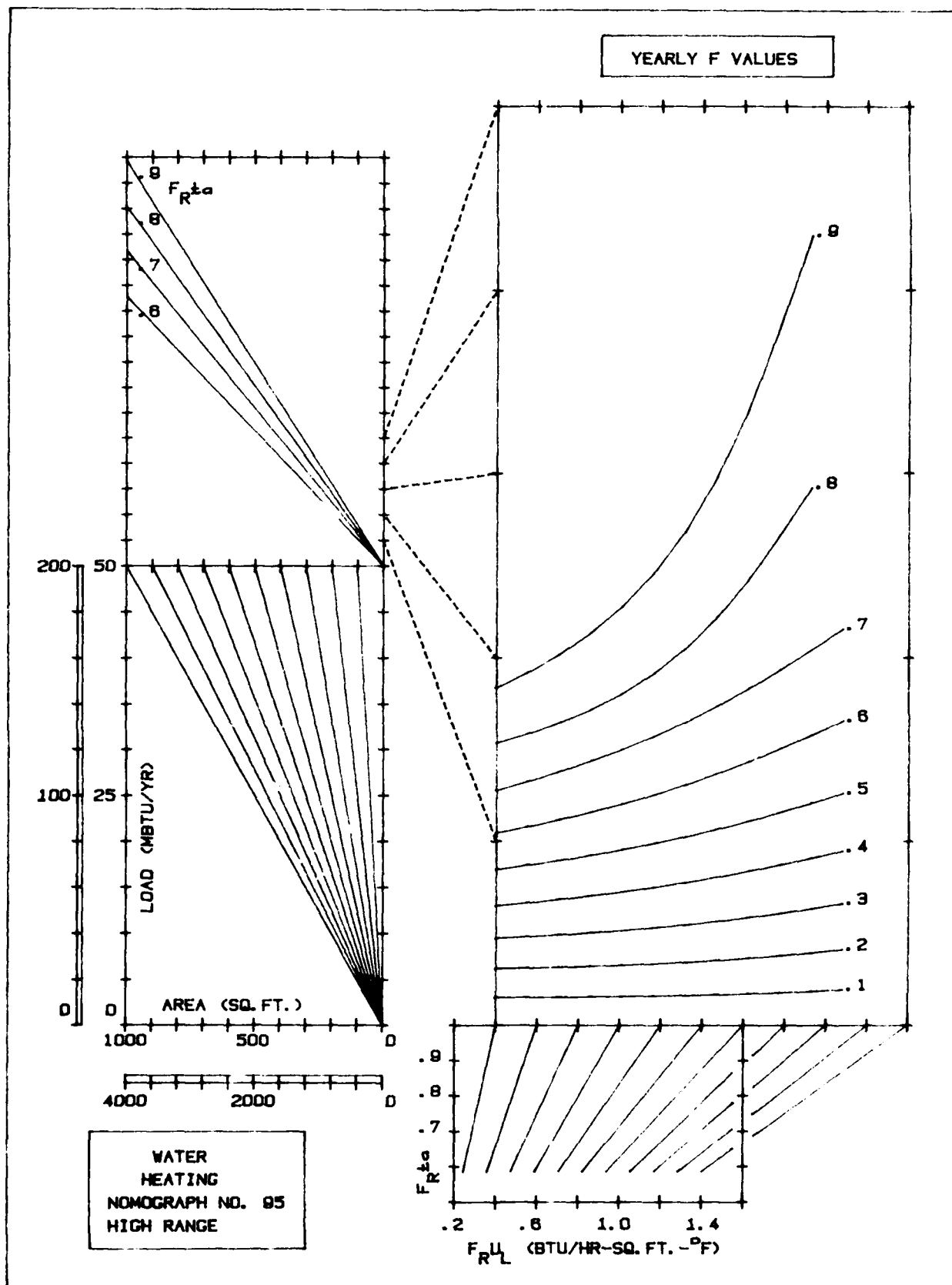


PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C153

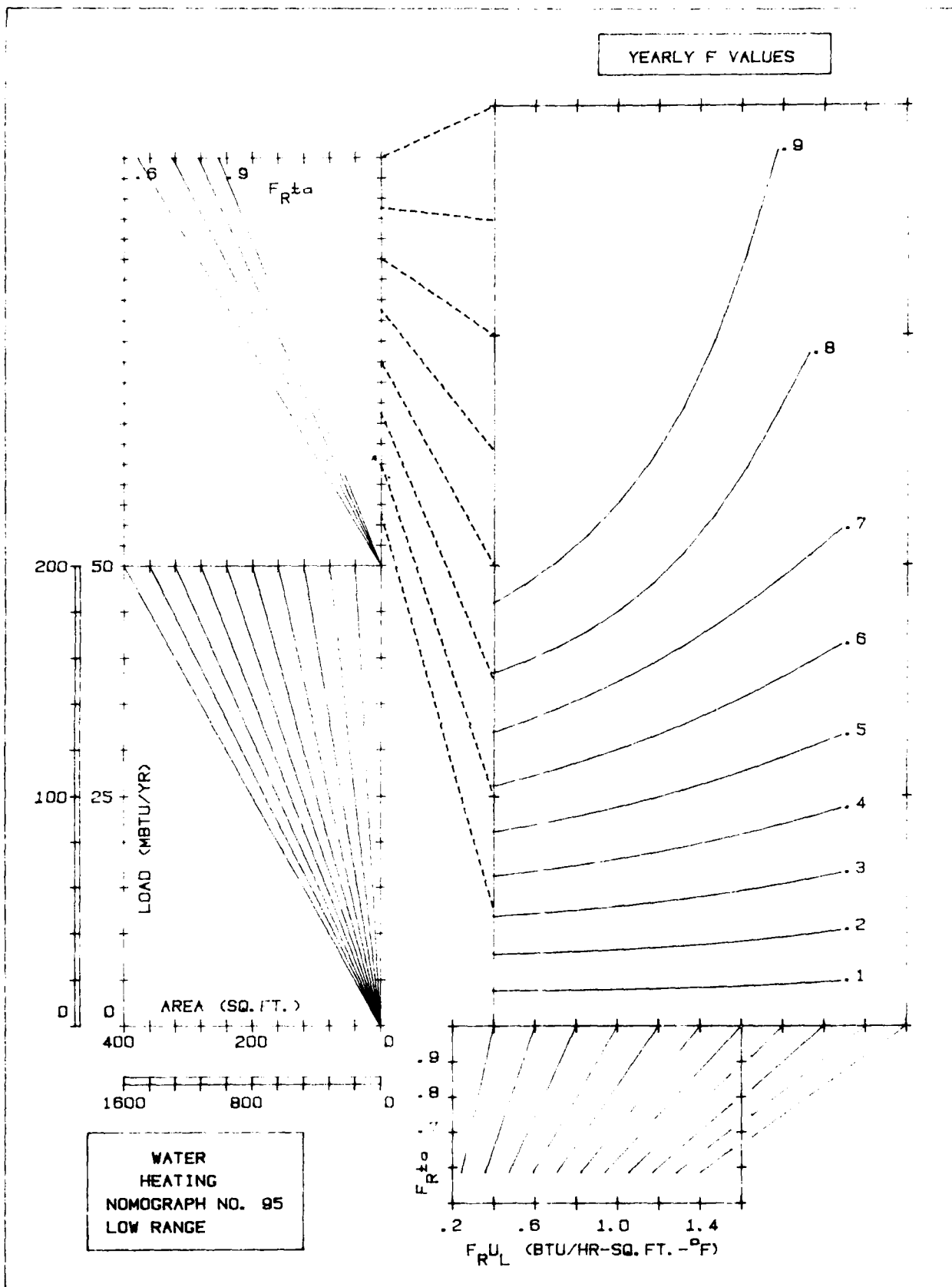


PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS



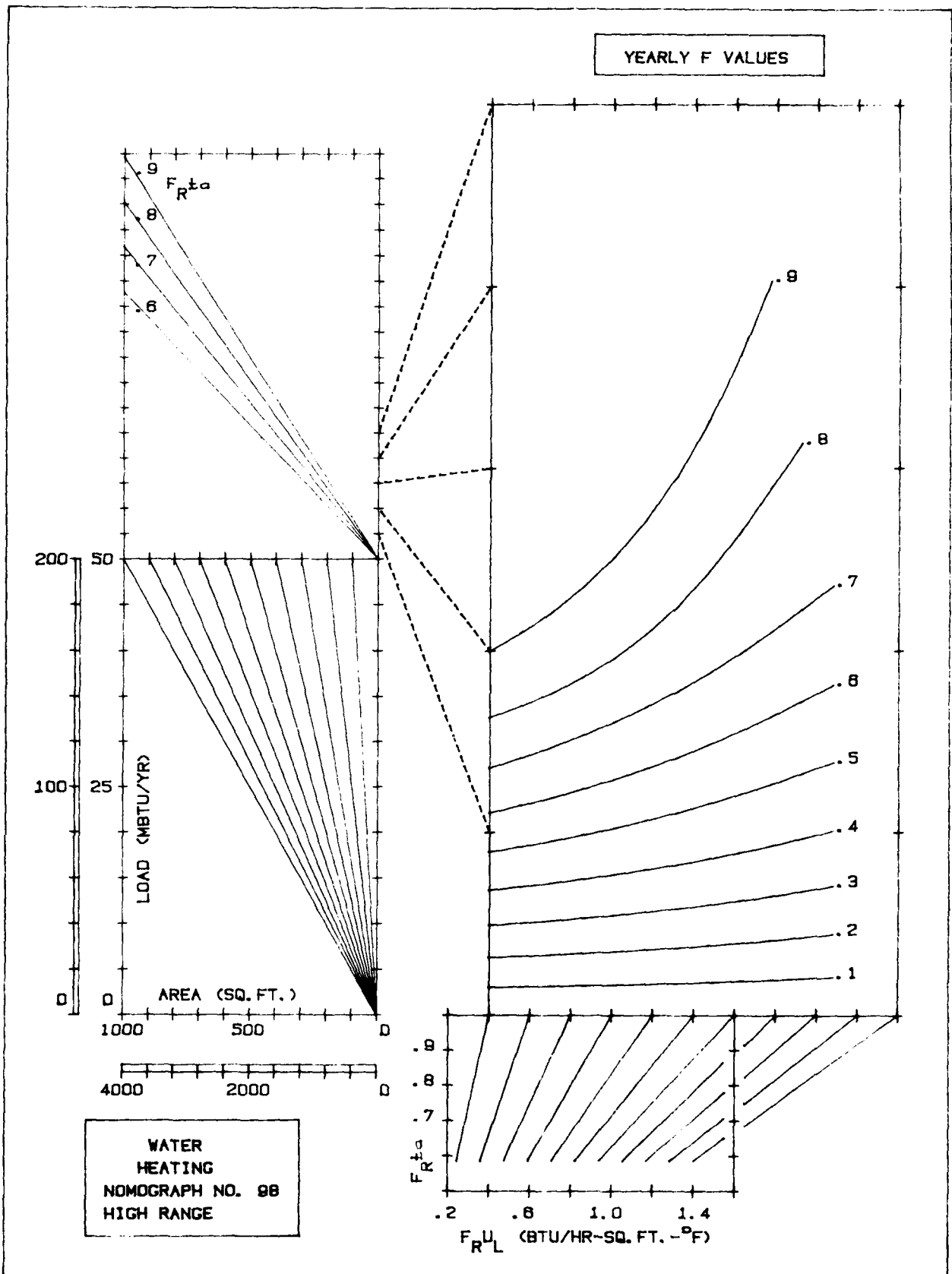
PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C155



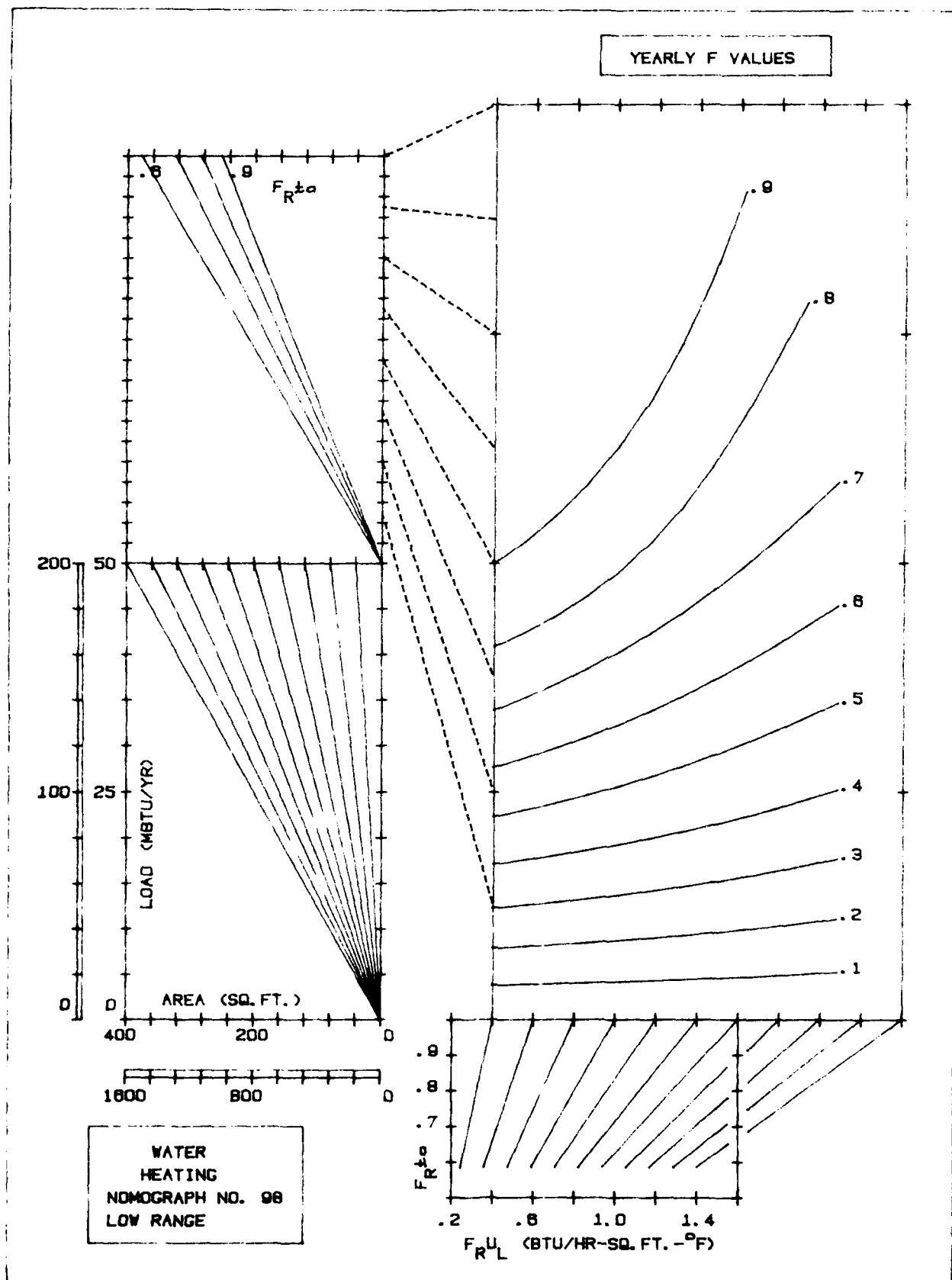
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C156

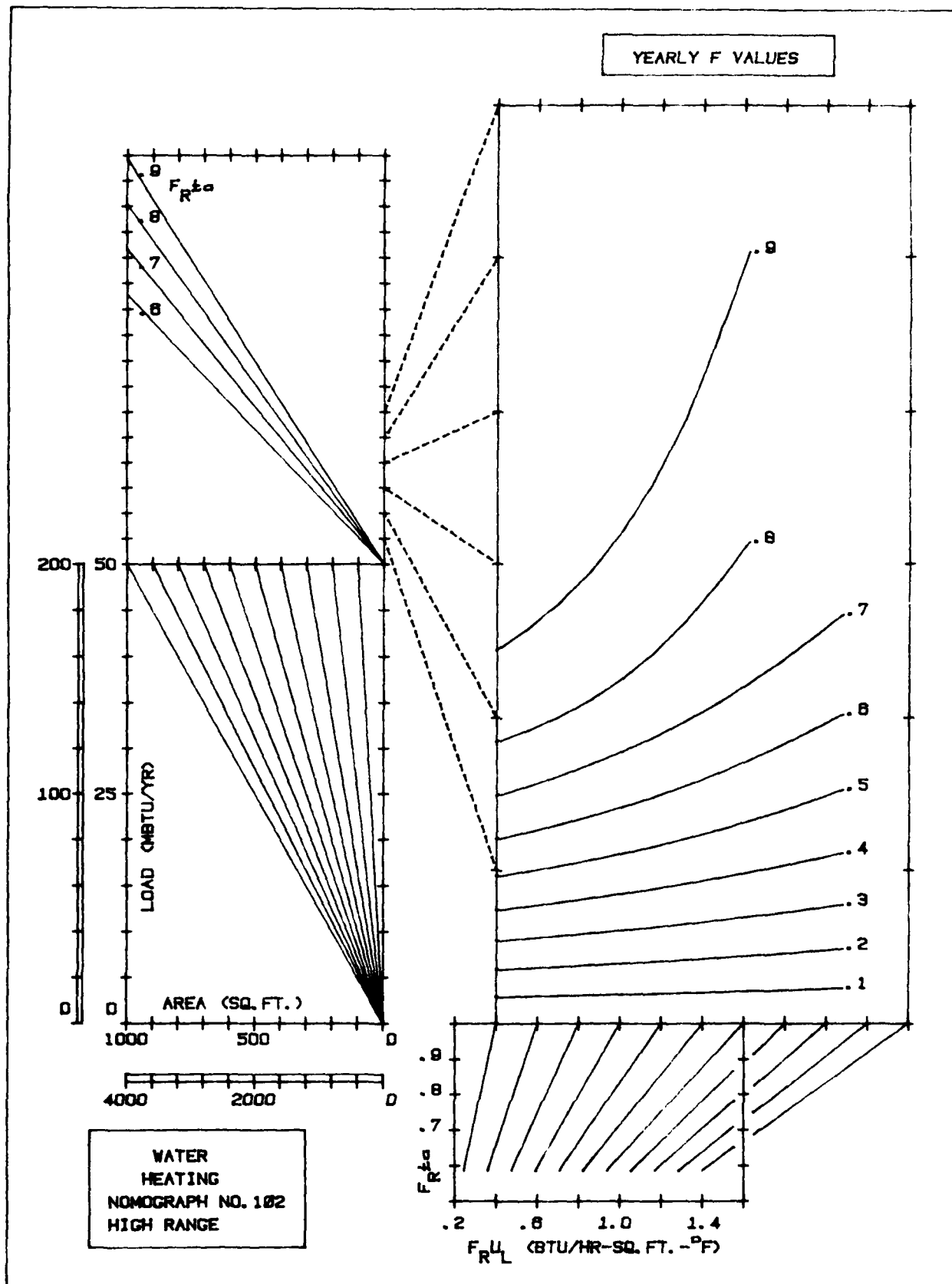


PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

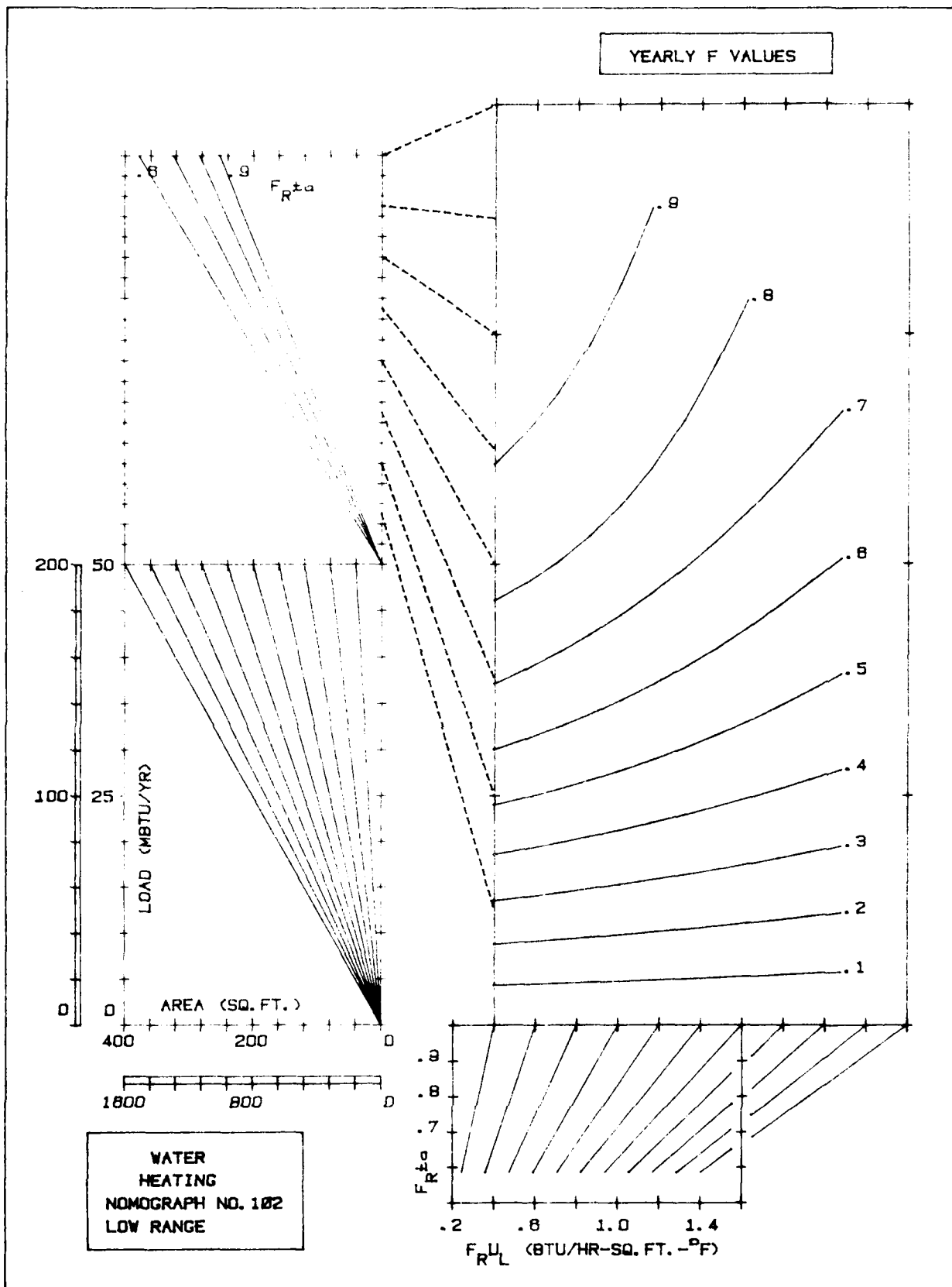
C157



PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

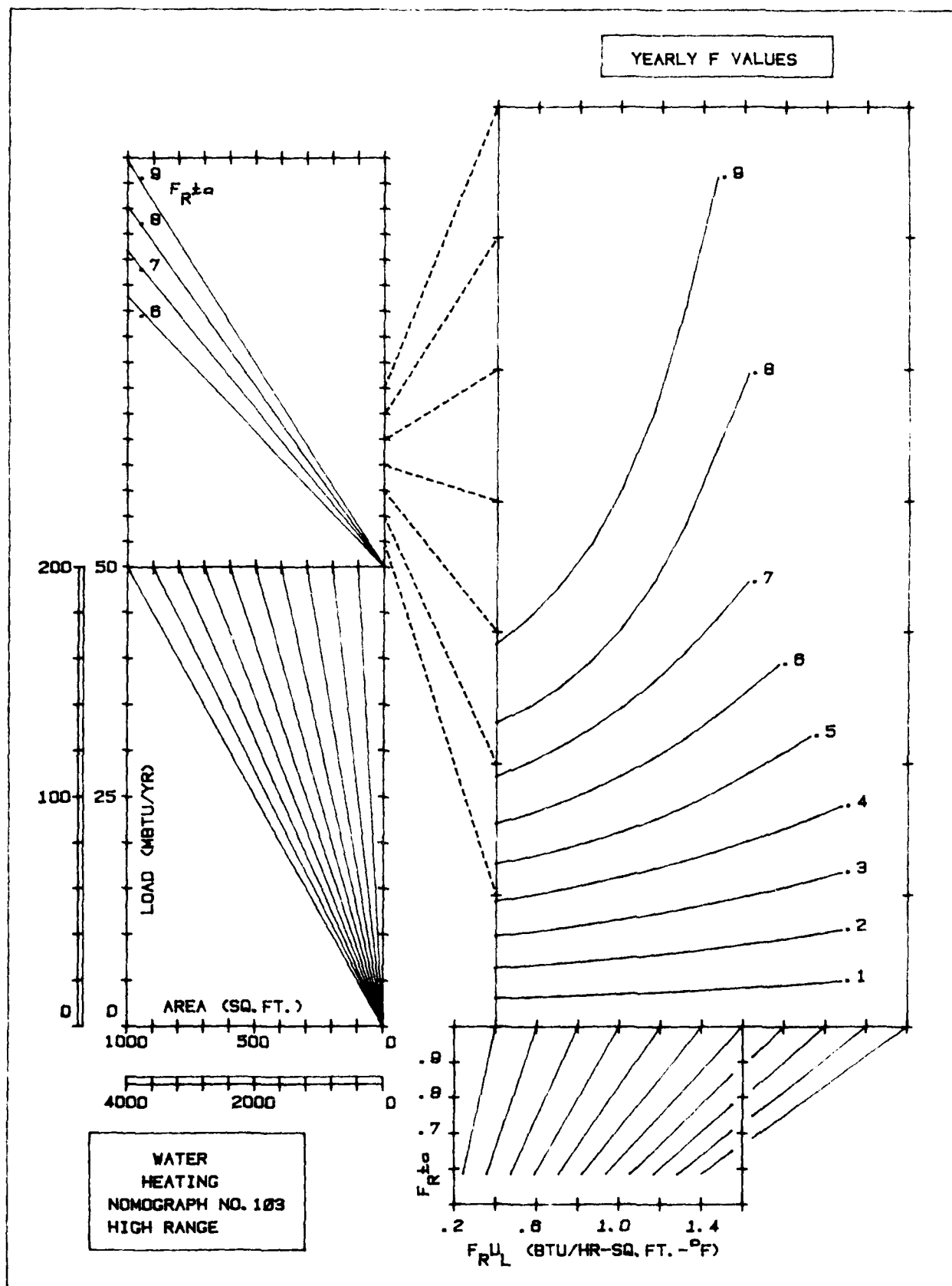


PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS



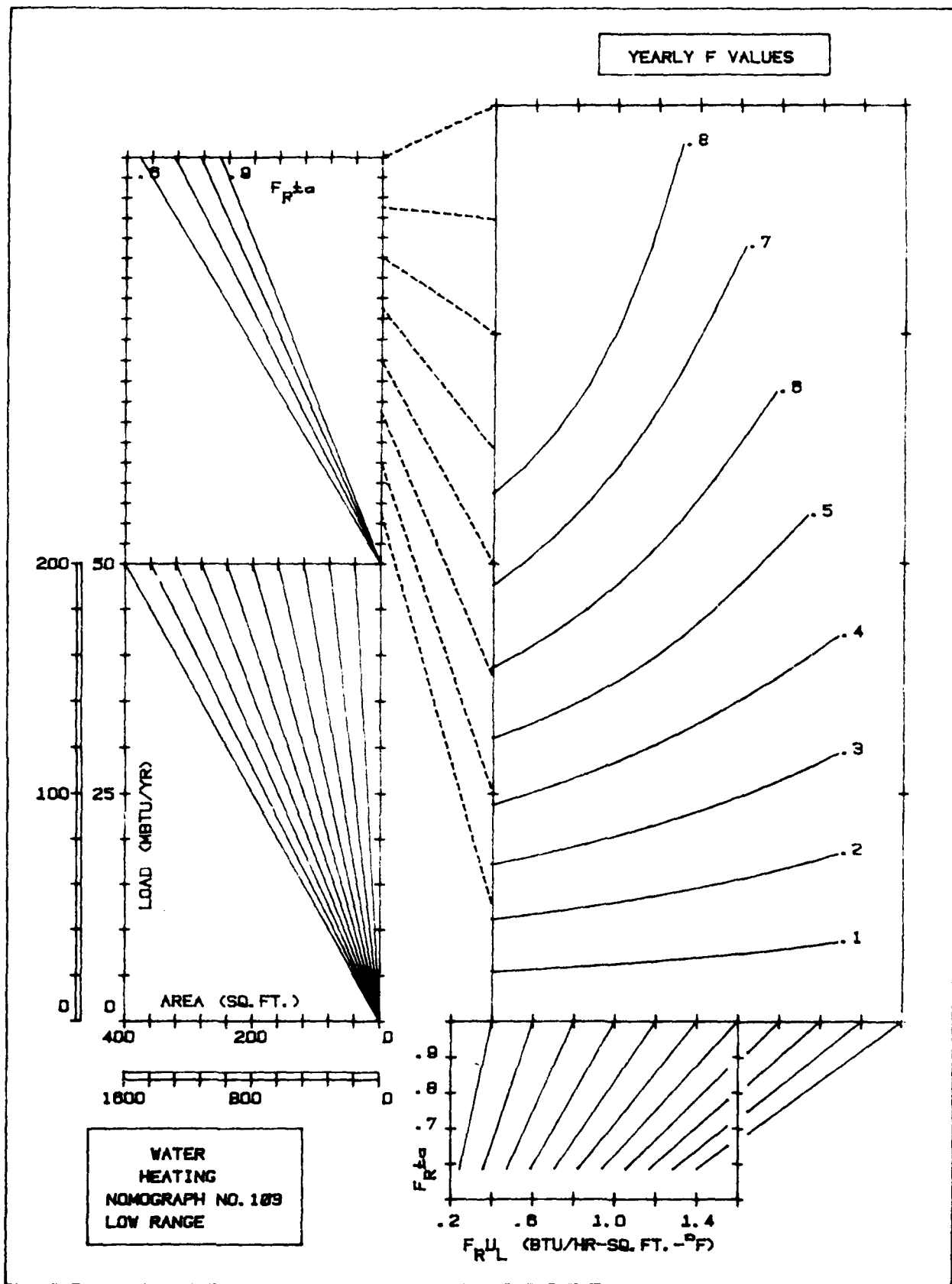
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C160



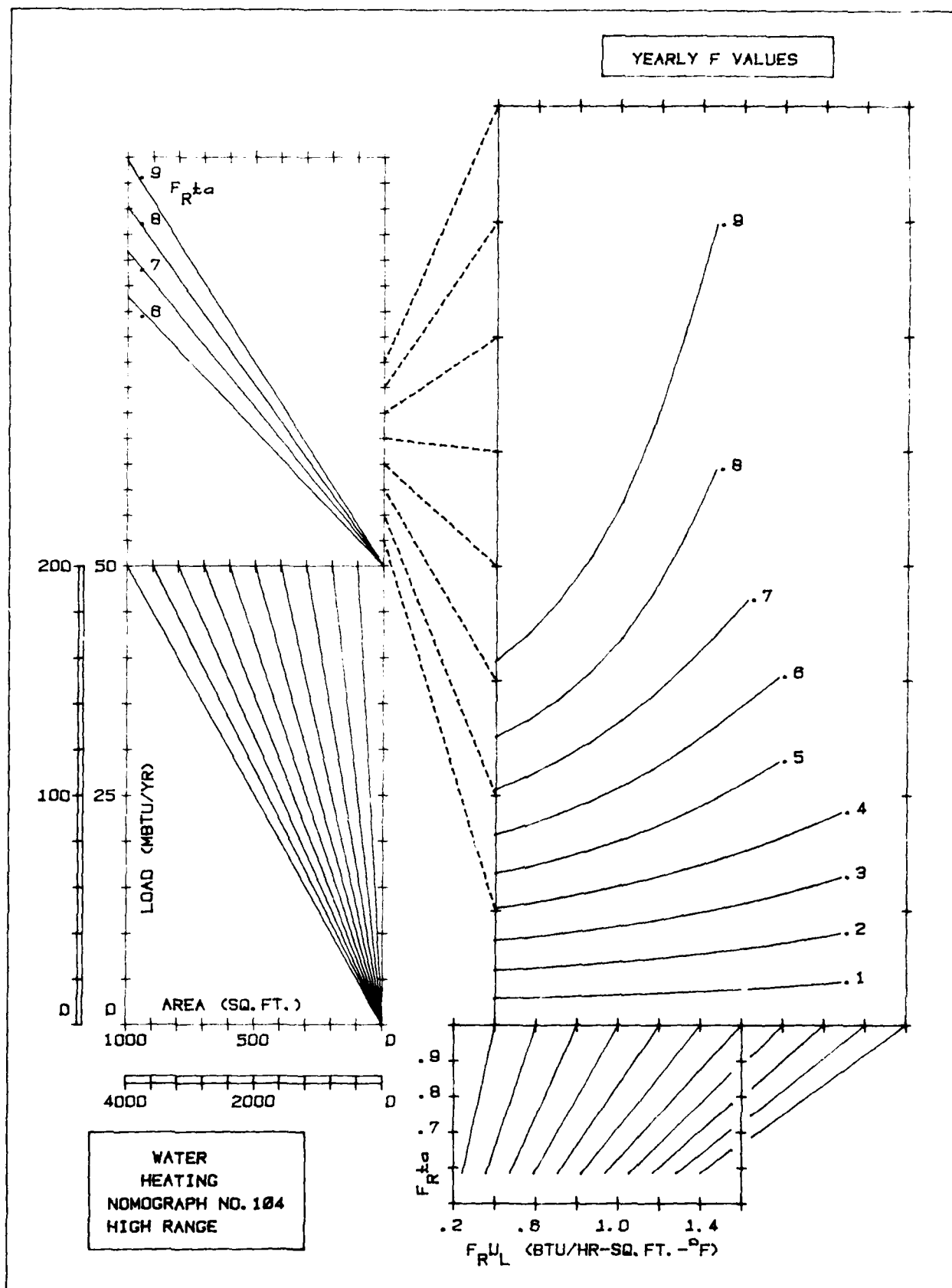
PREPARED 29 JUN 82 FOR AFESC BY USAFA/DFMS

C161

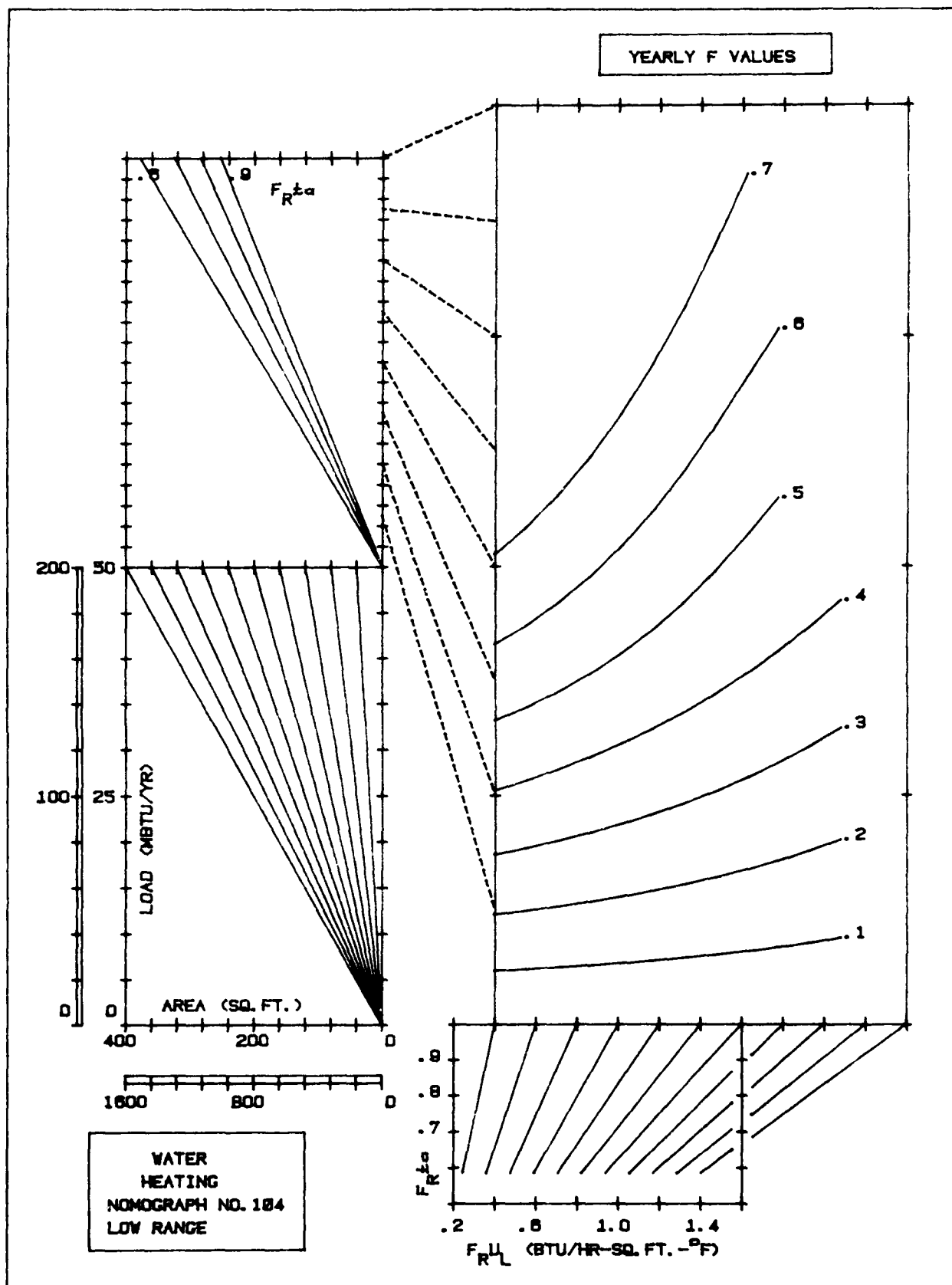


PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

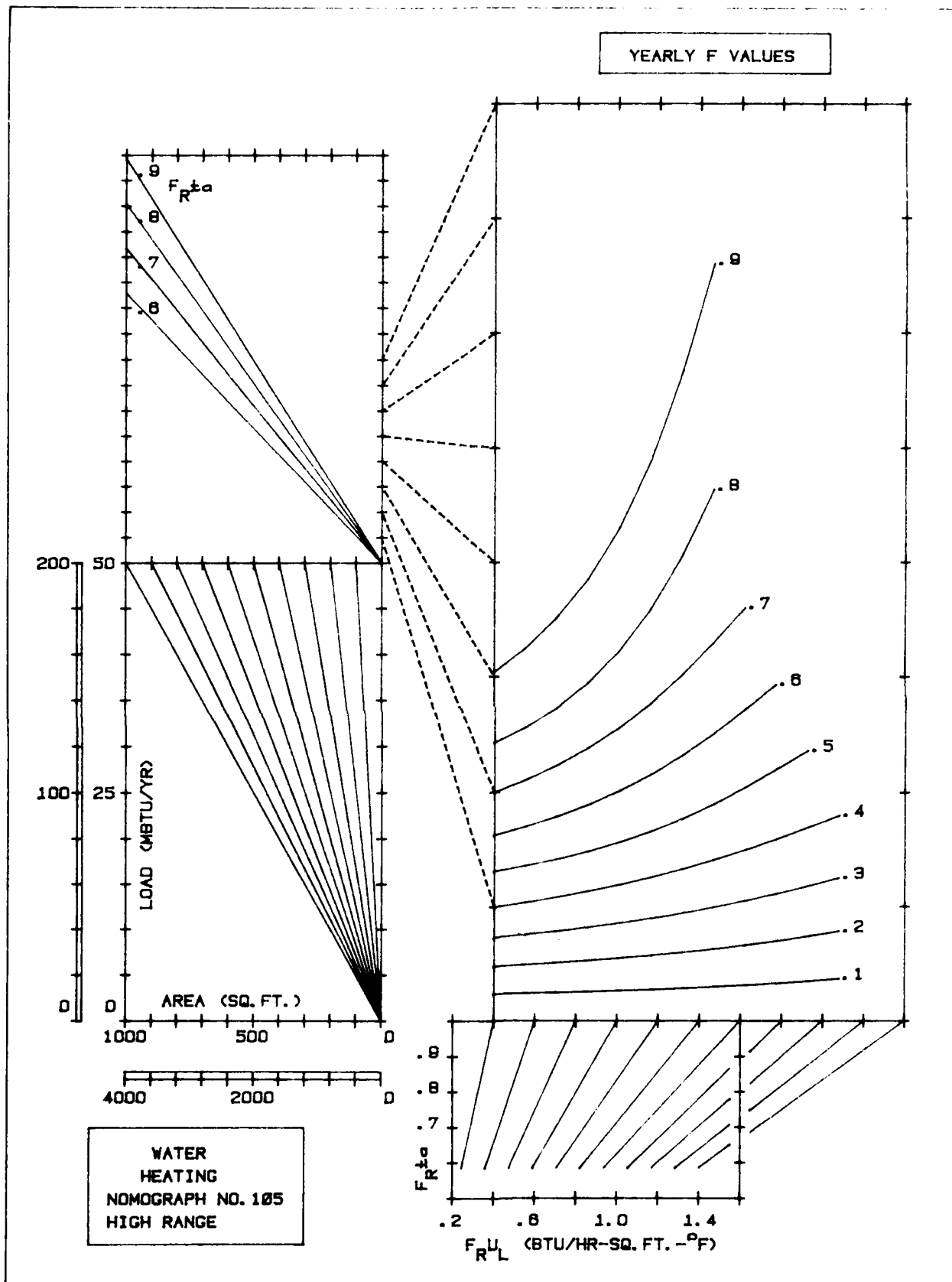
C162



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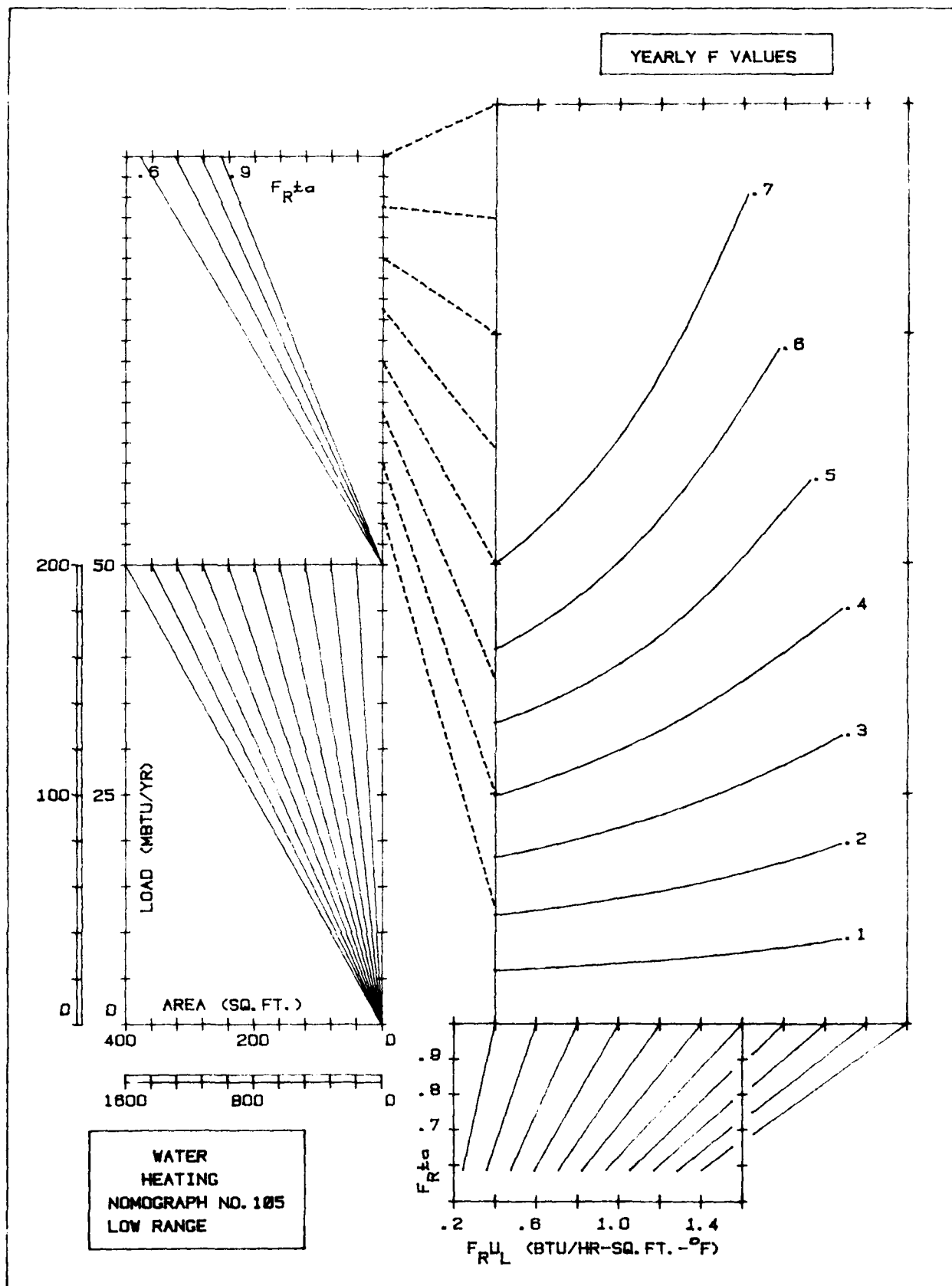


PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS



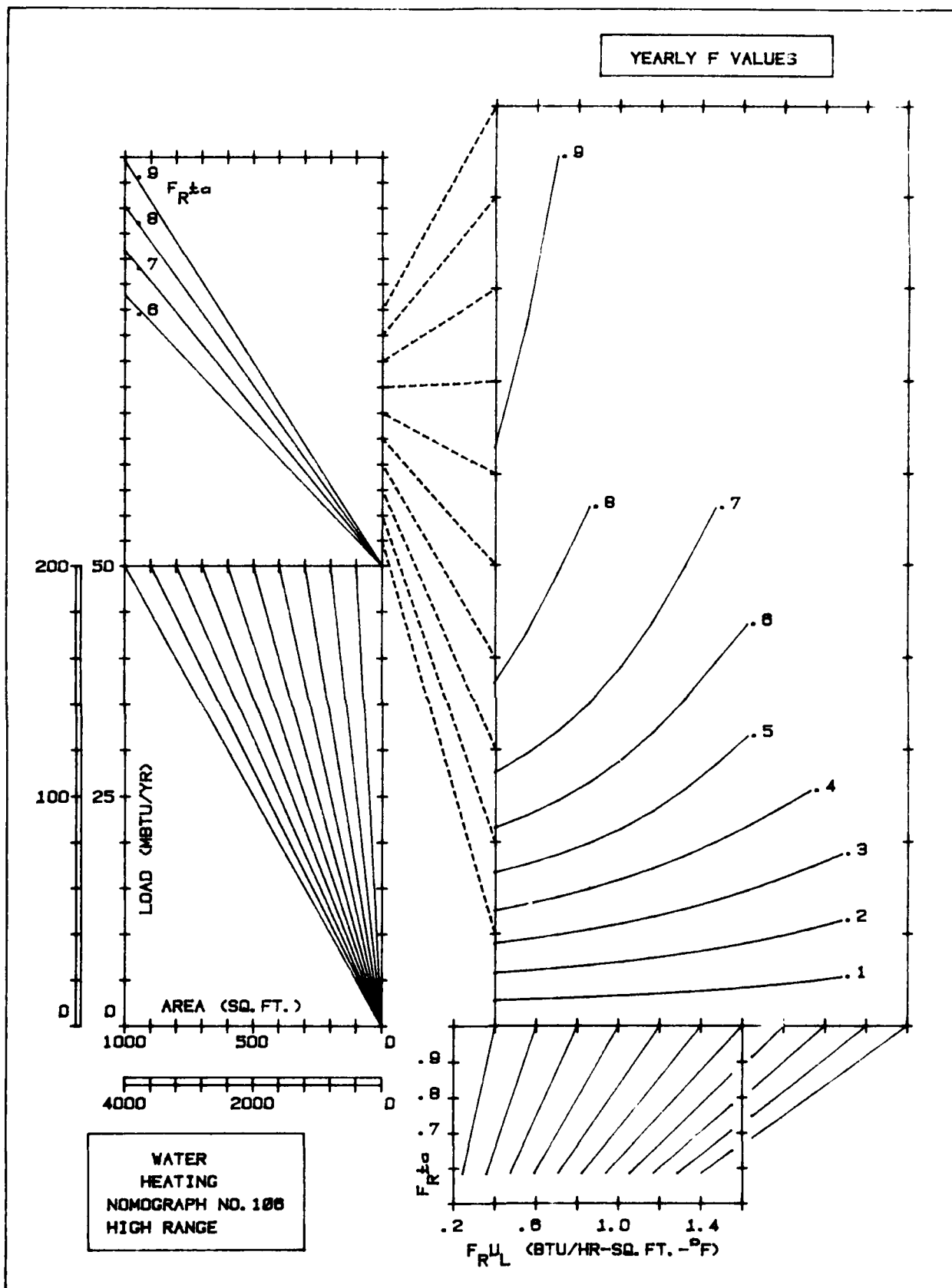
PREPARED 20 JUN 82 FOR AFESC BY USAFA/DFMS

C165



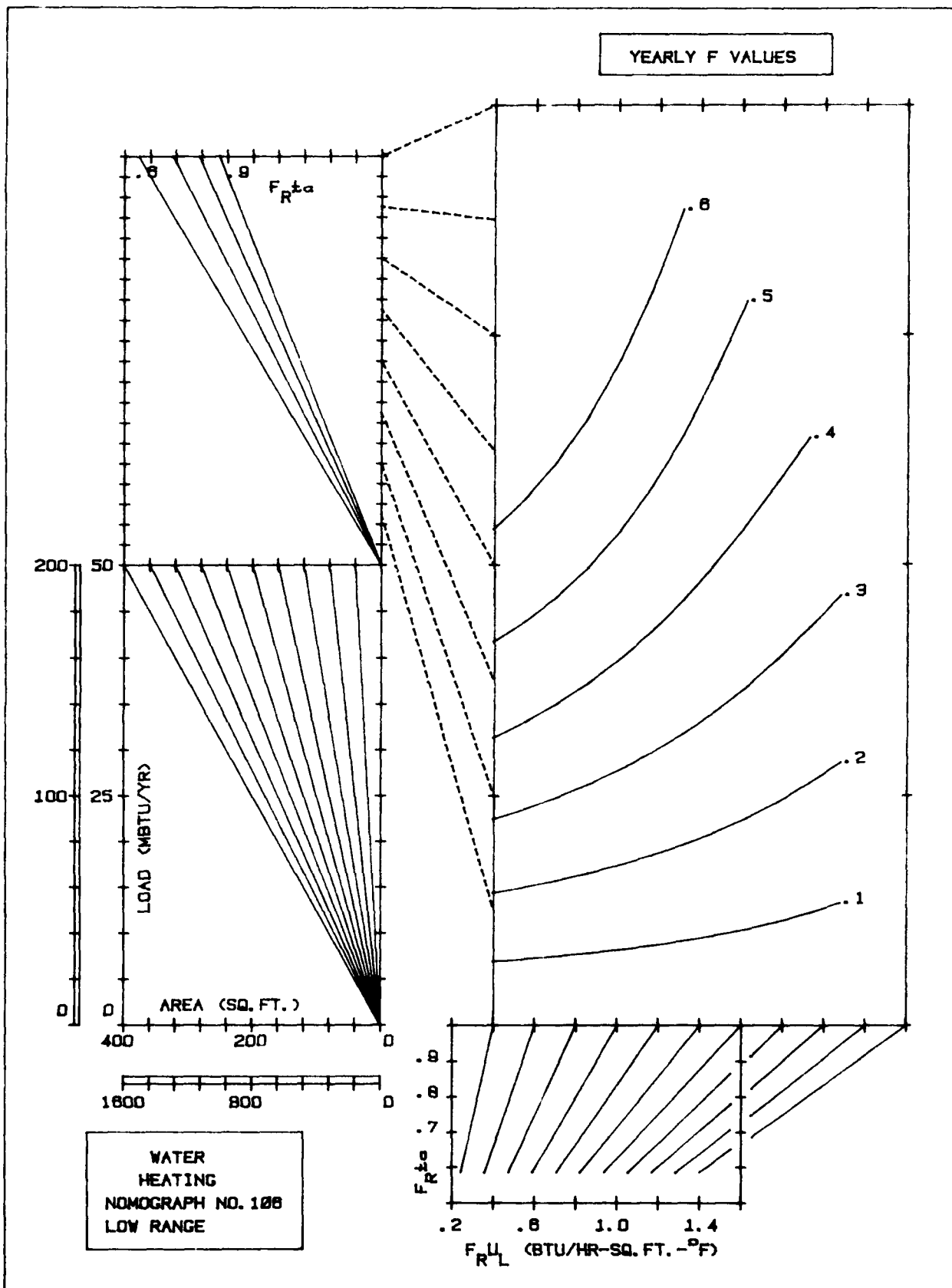
PREPARED 15 JUL 82 FOR AFESC BY USAFA/DFMS

C166

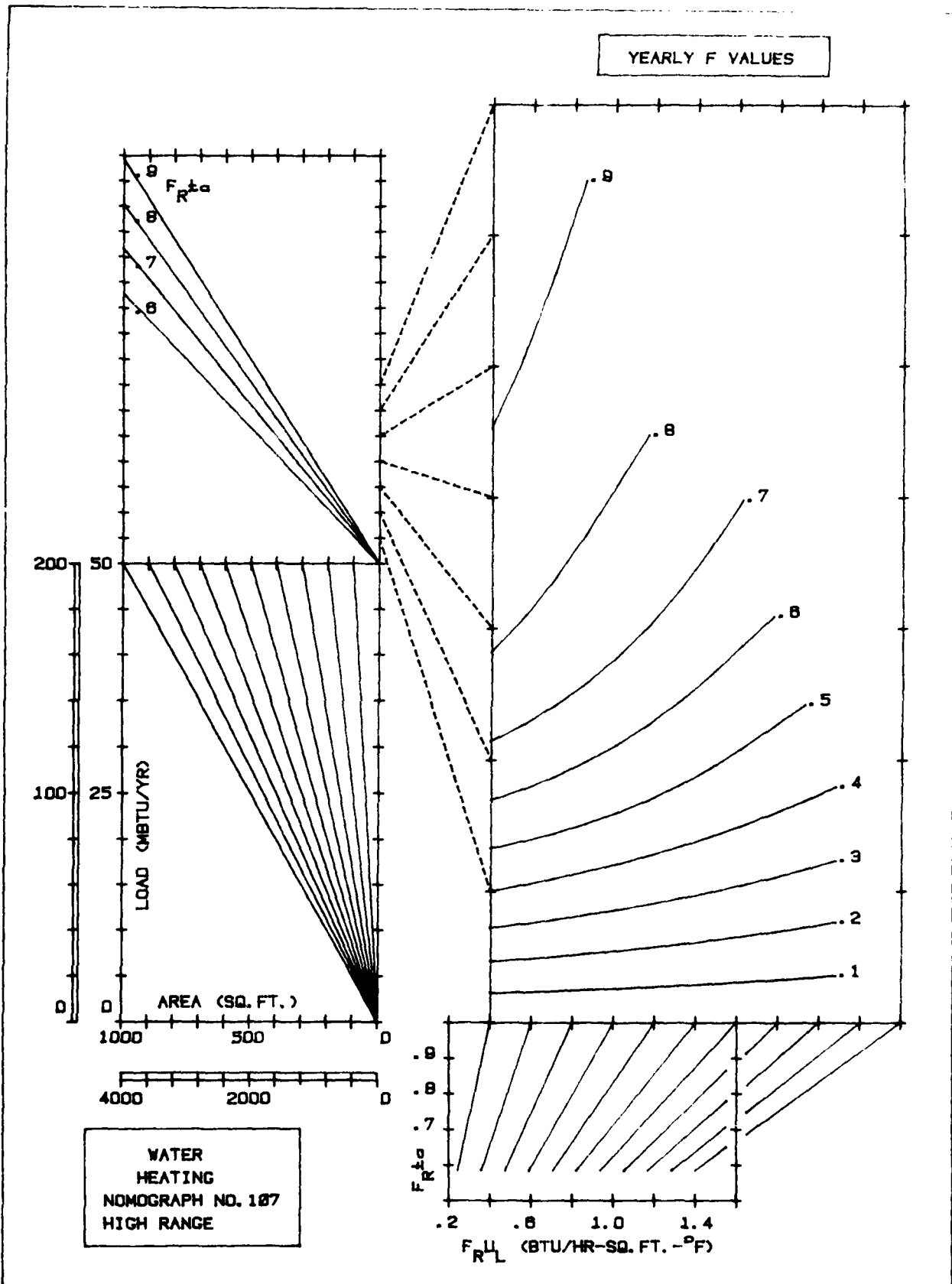


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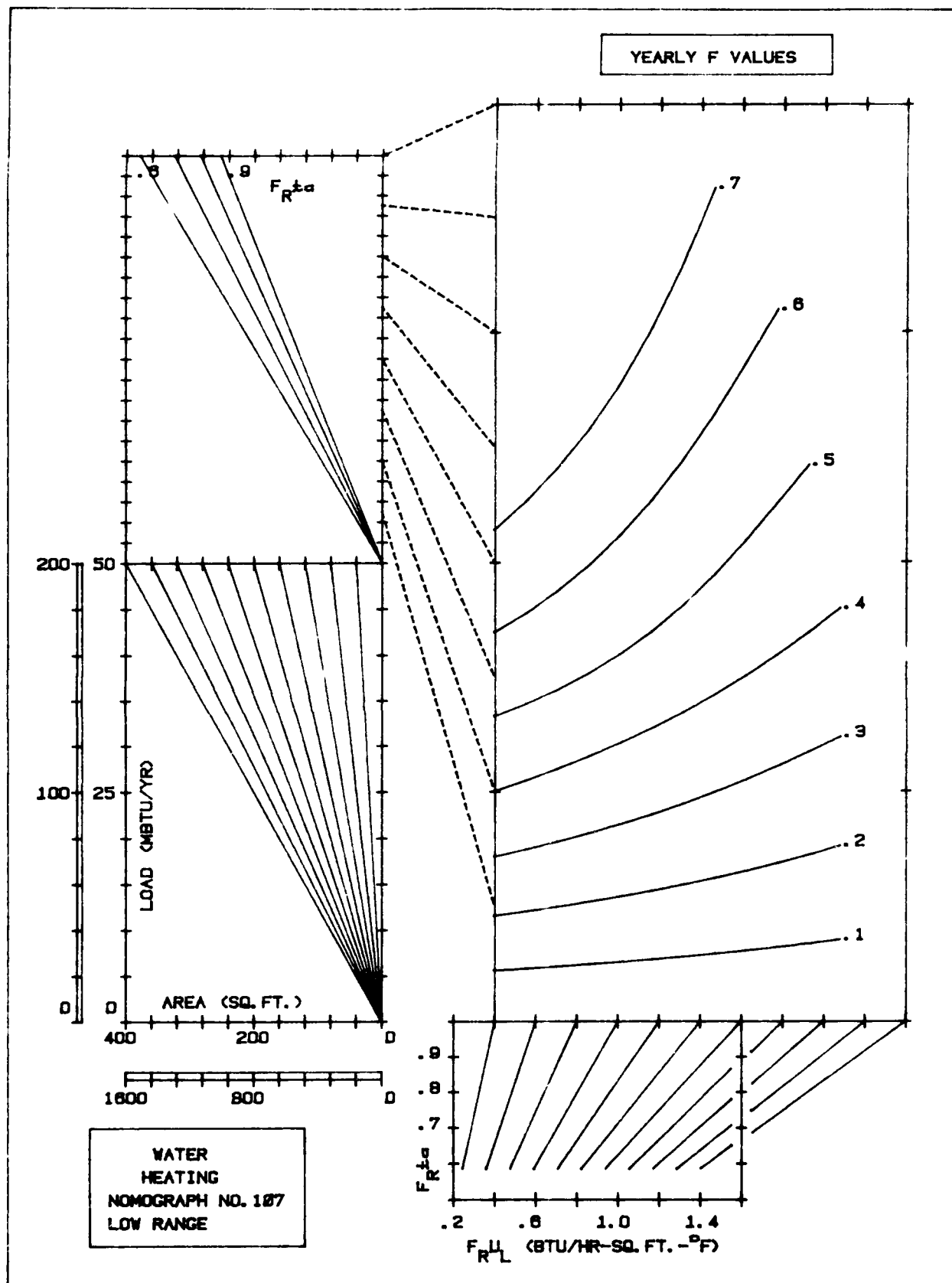
C167



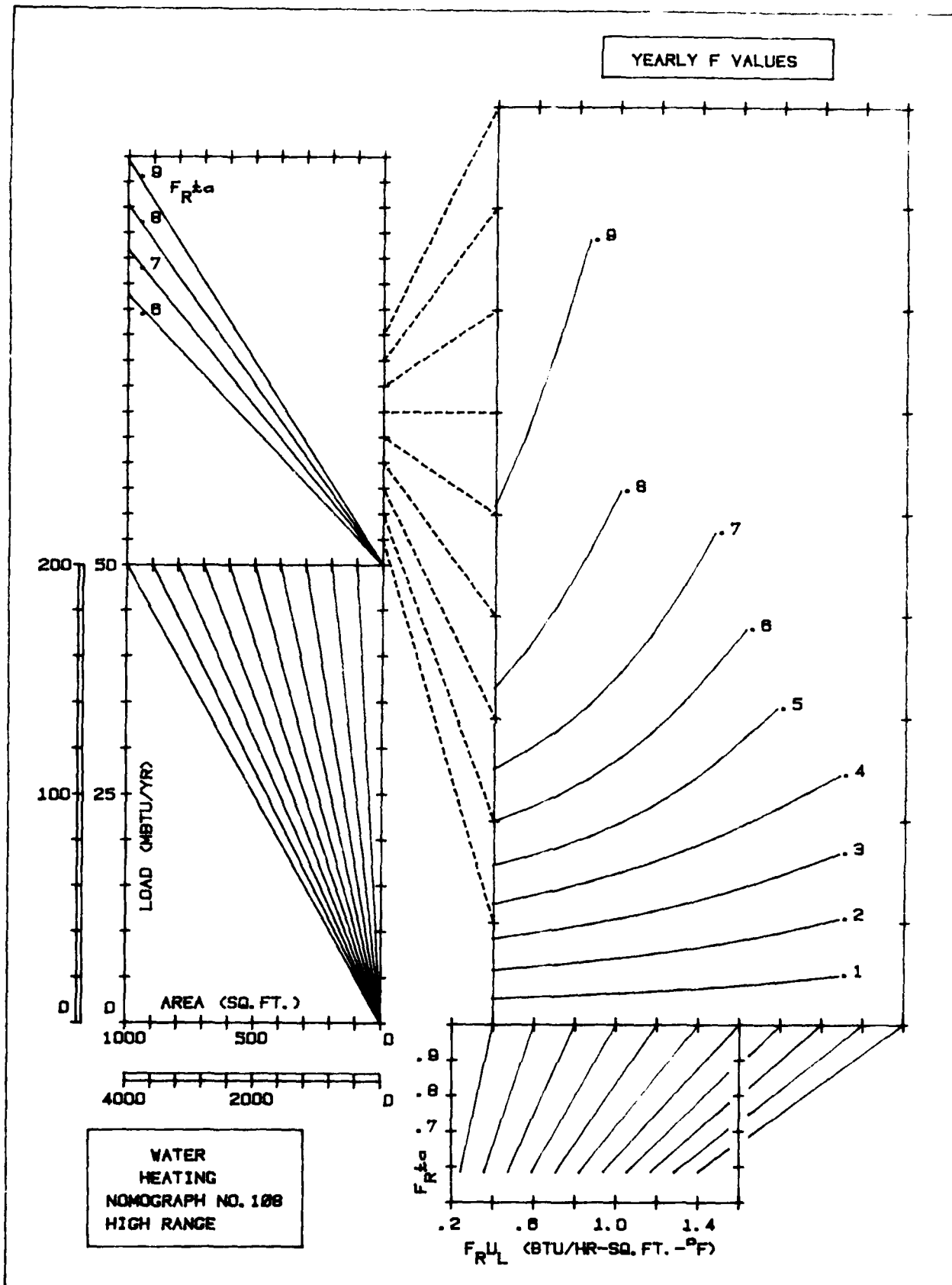
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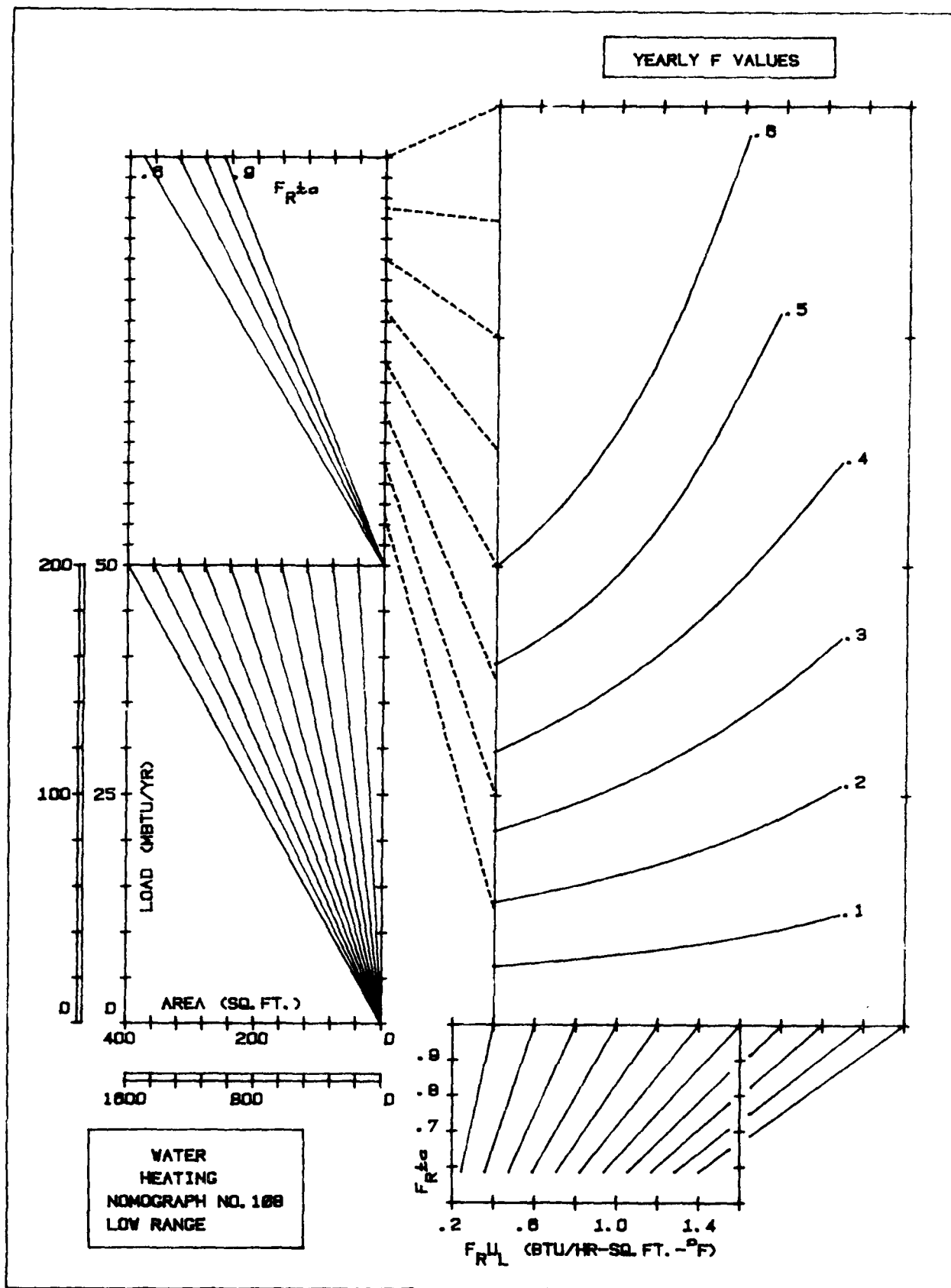


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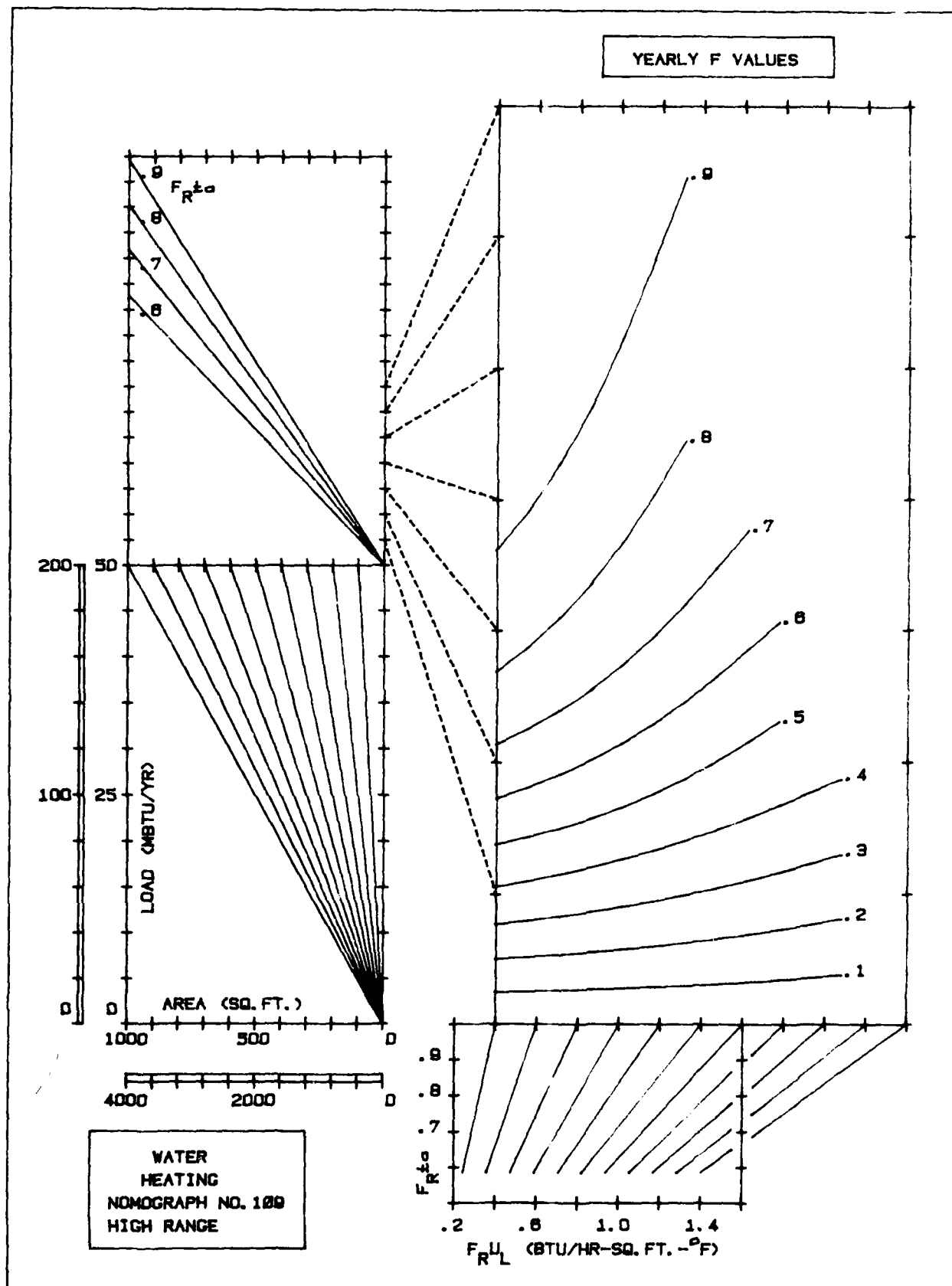


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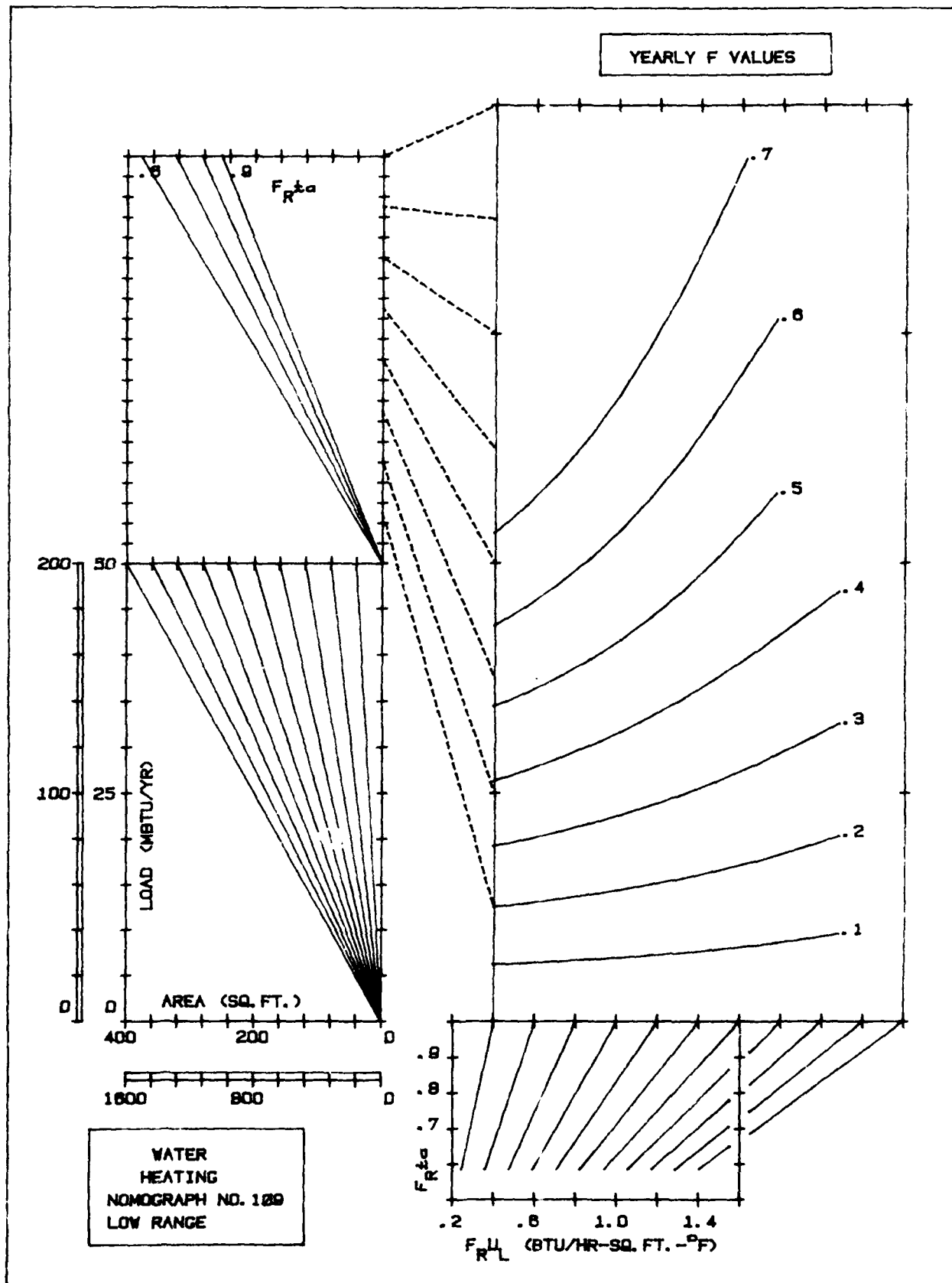
C171



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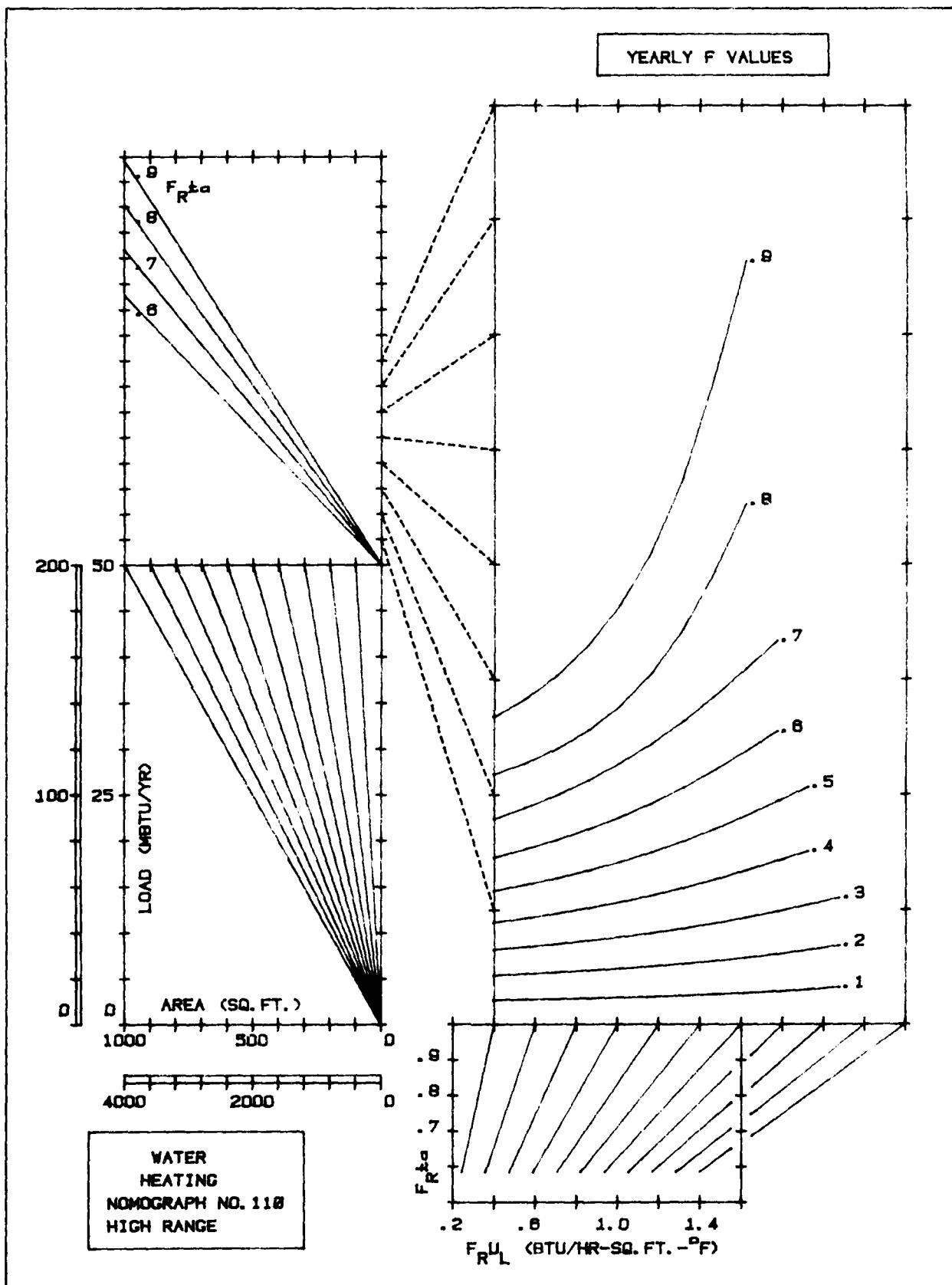


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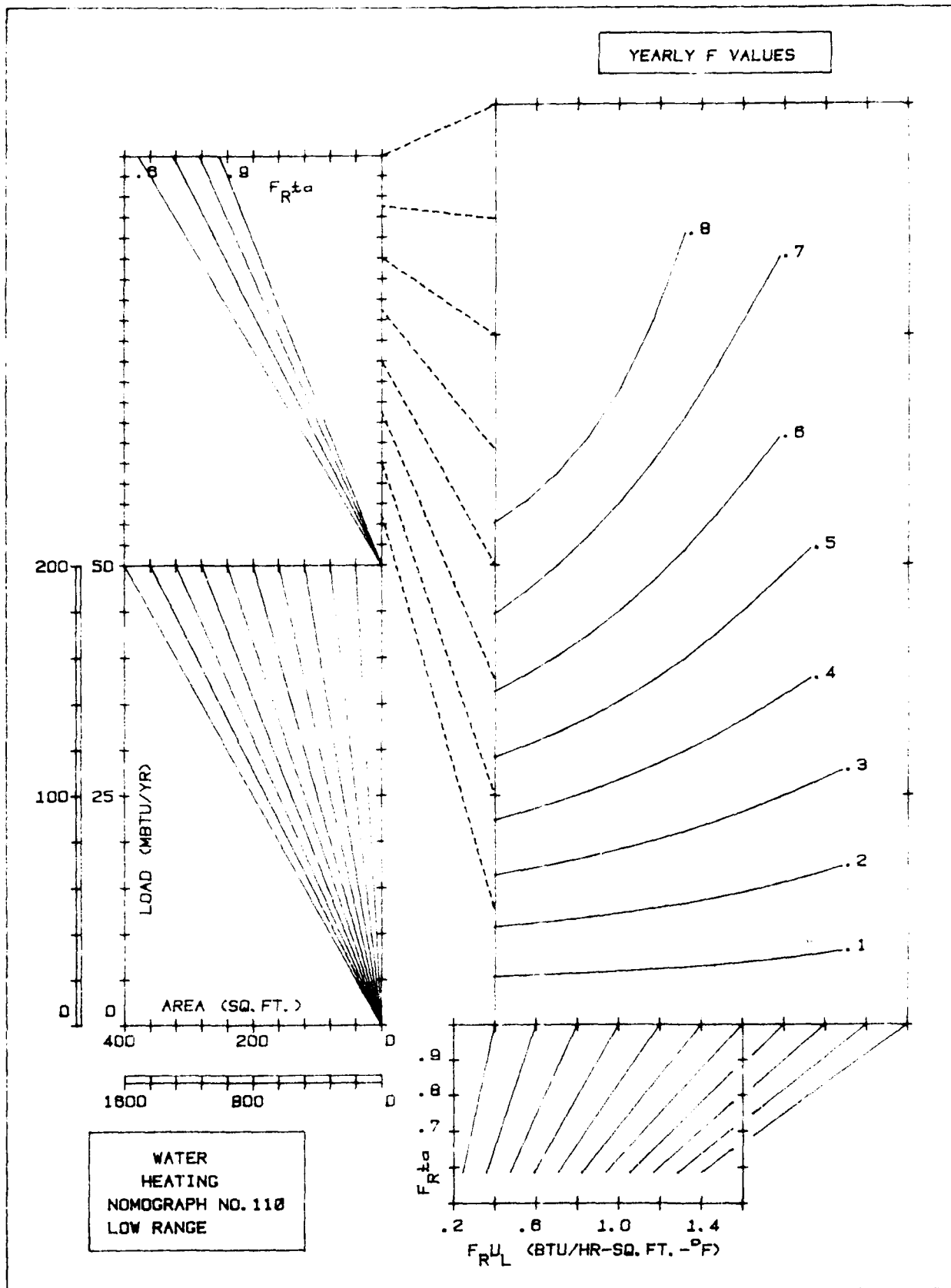


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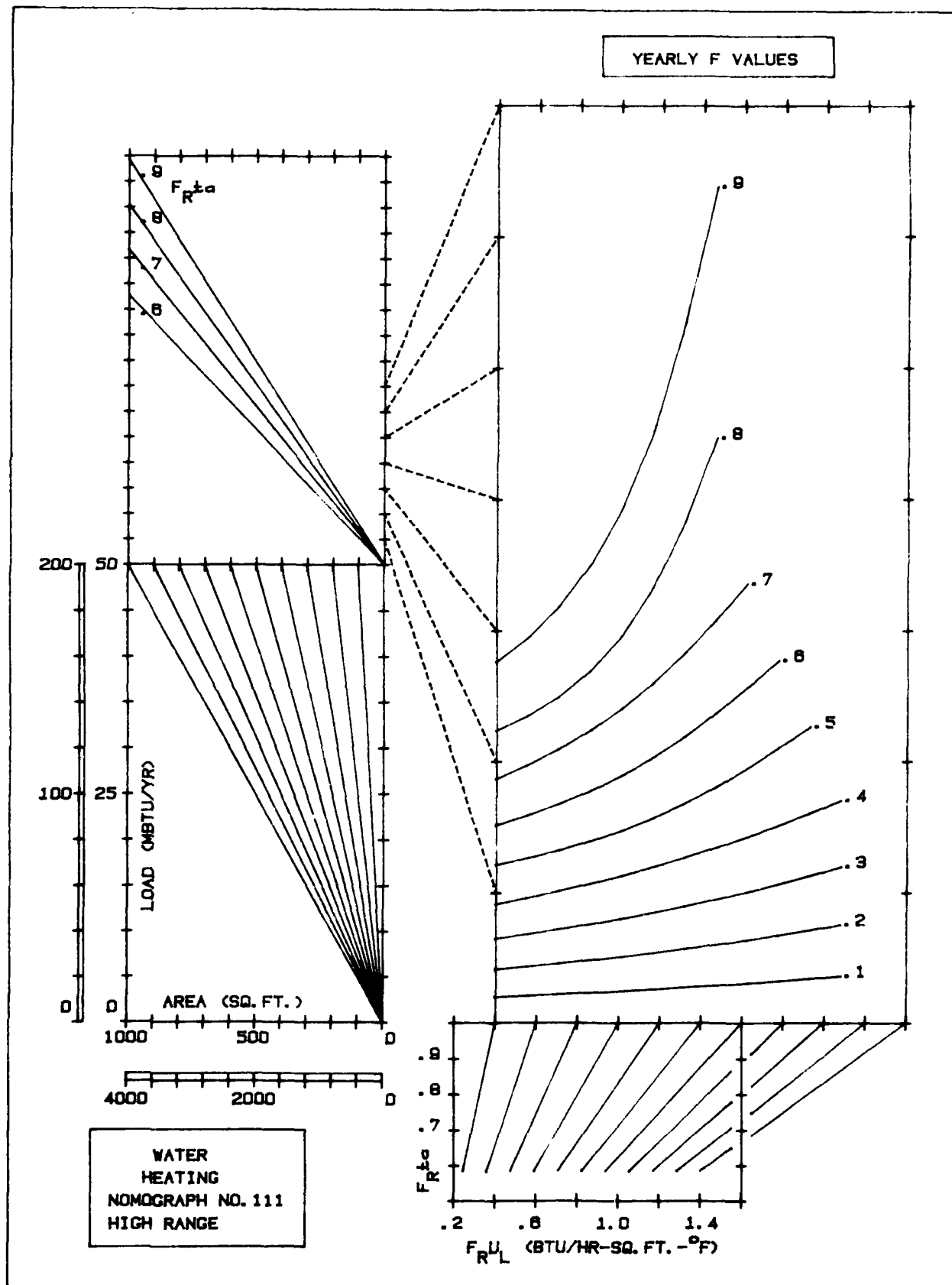
C174



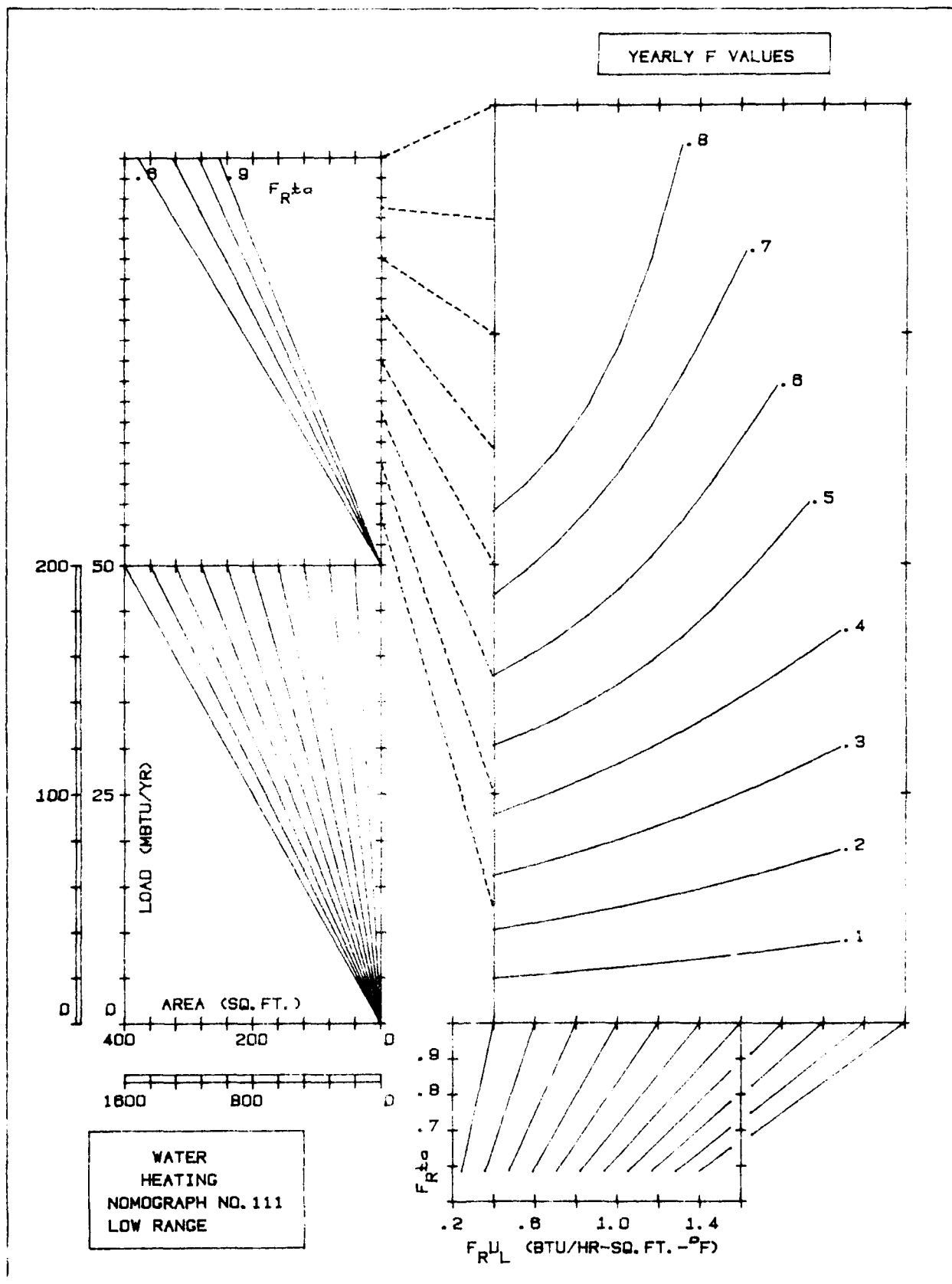
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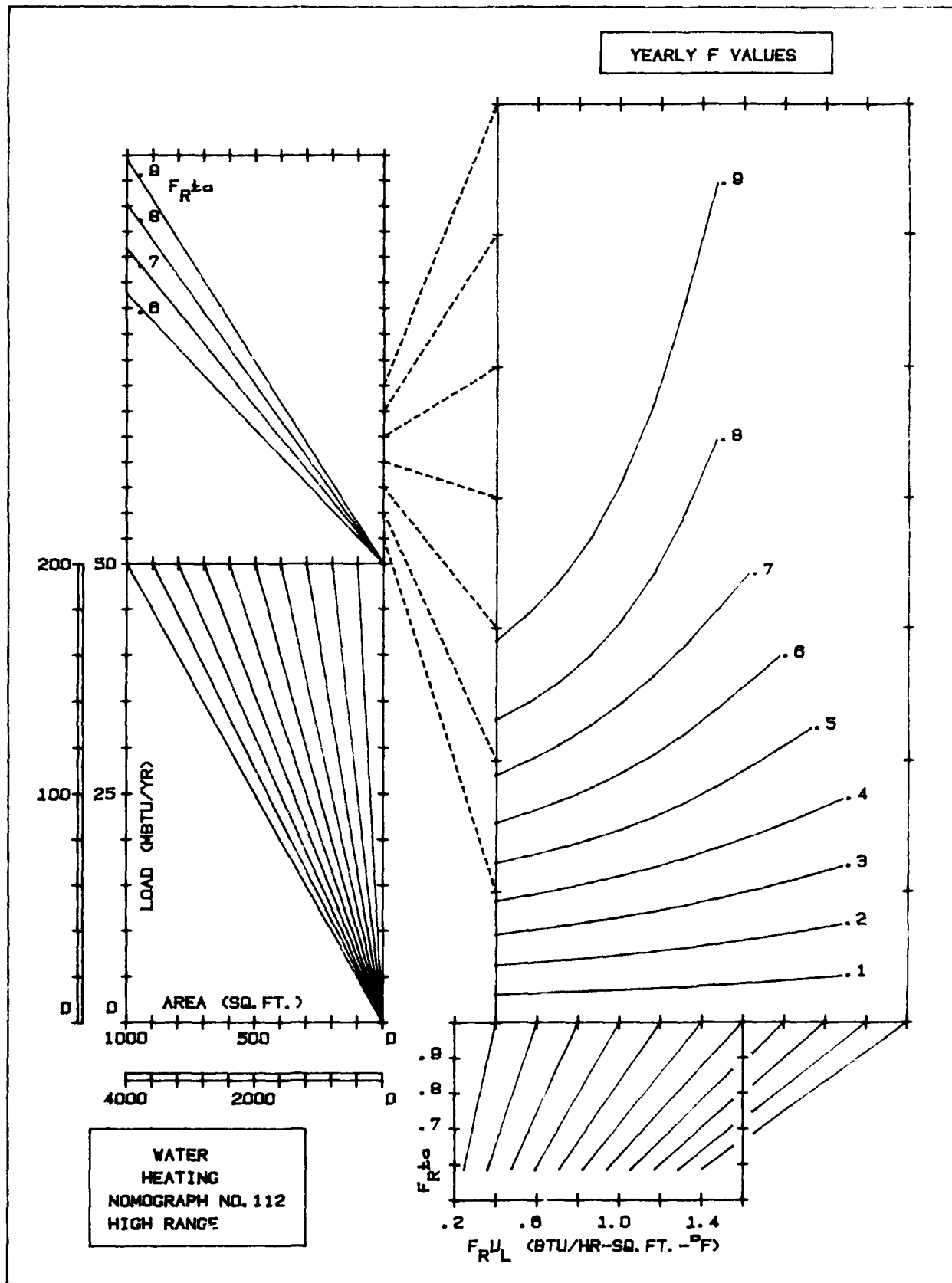
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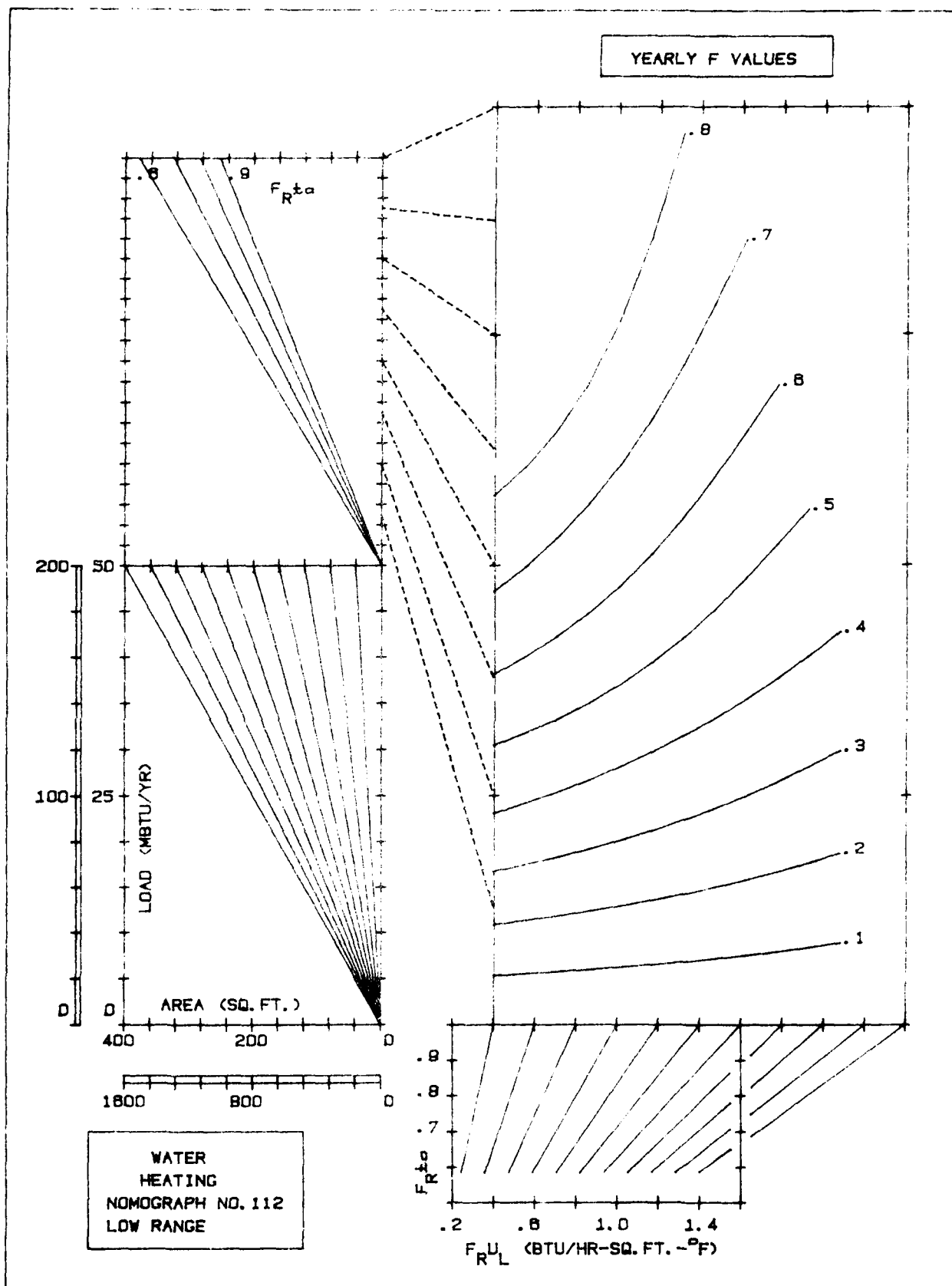
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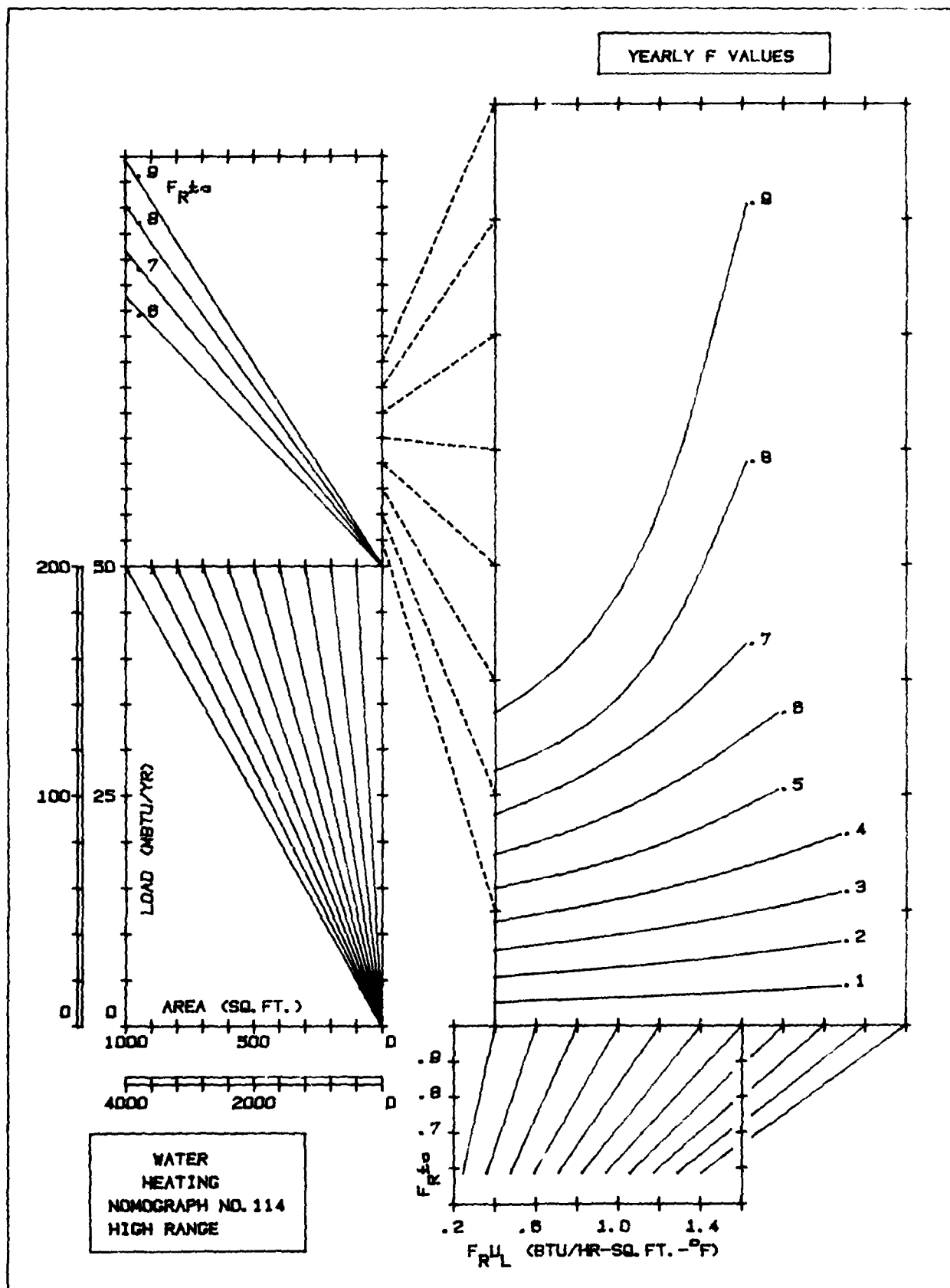
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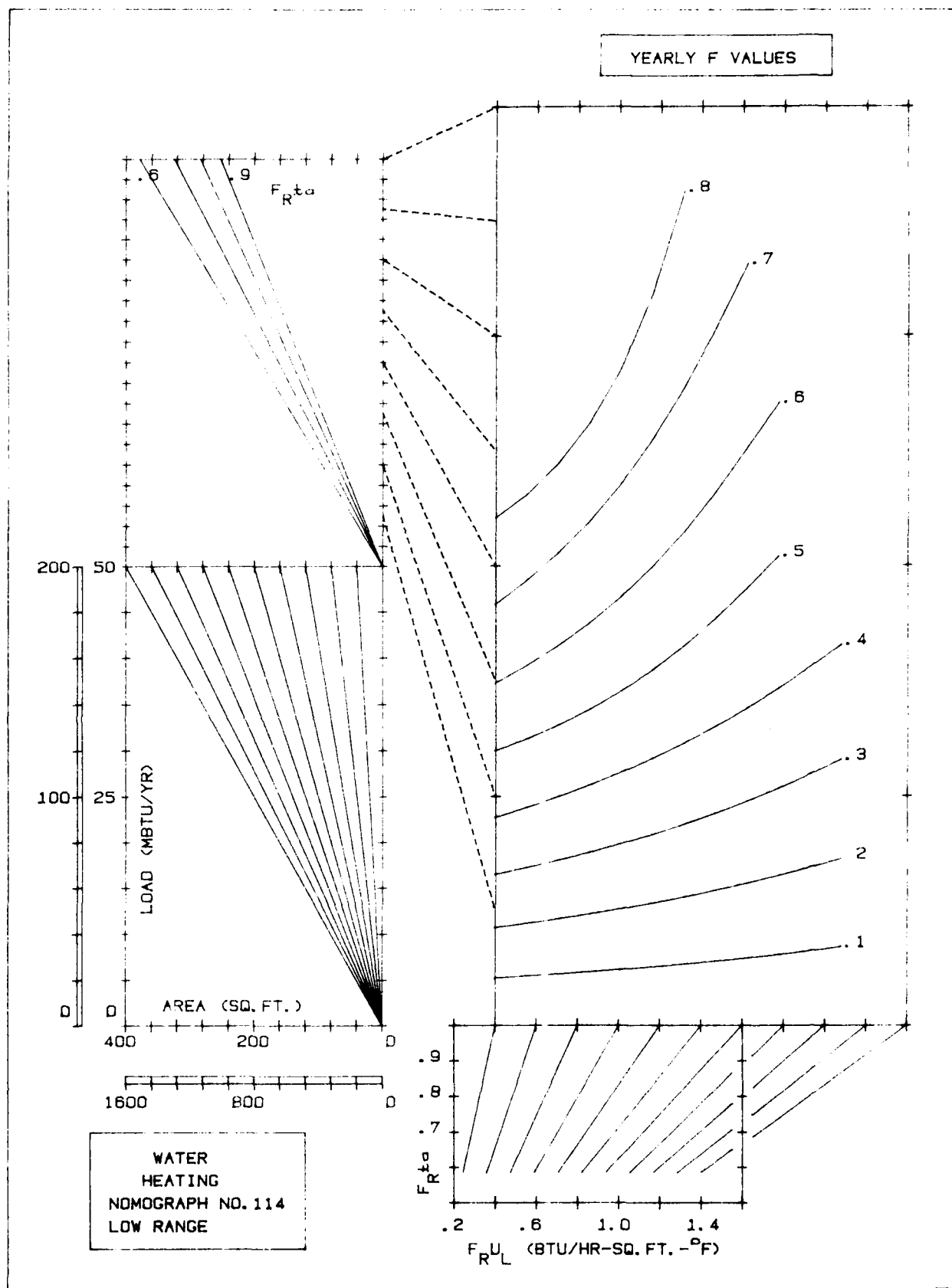
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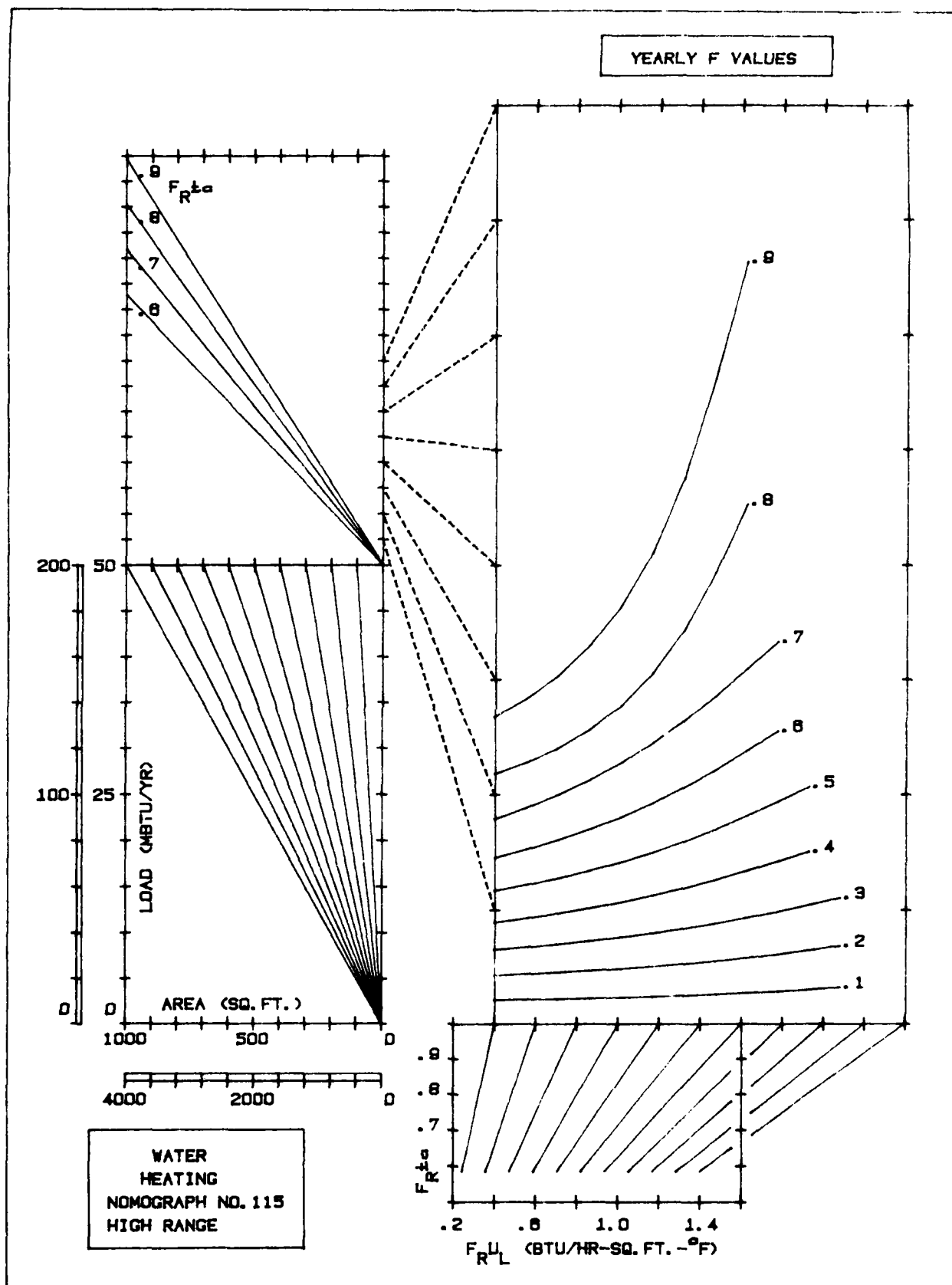
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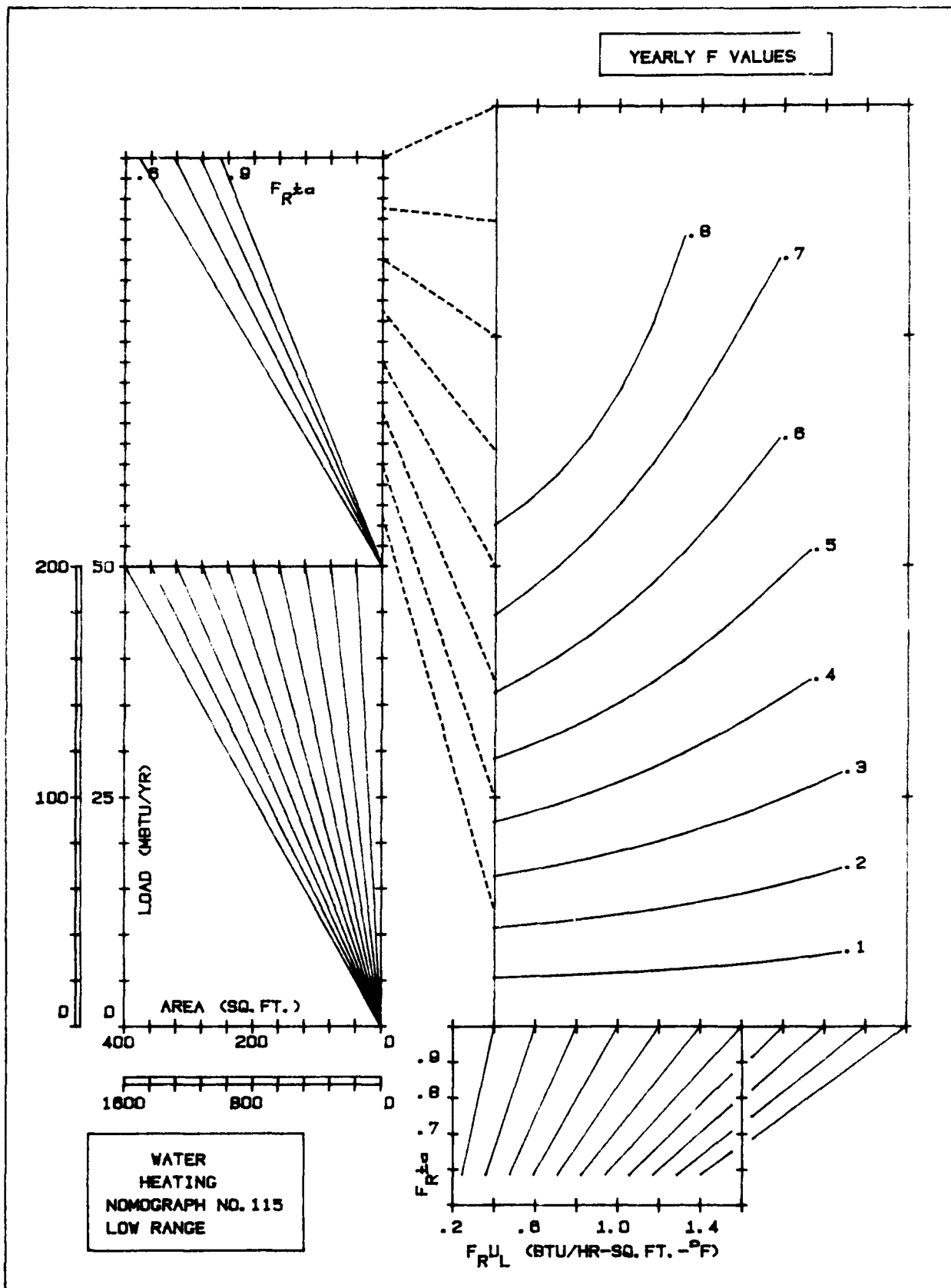
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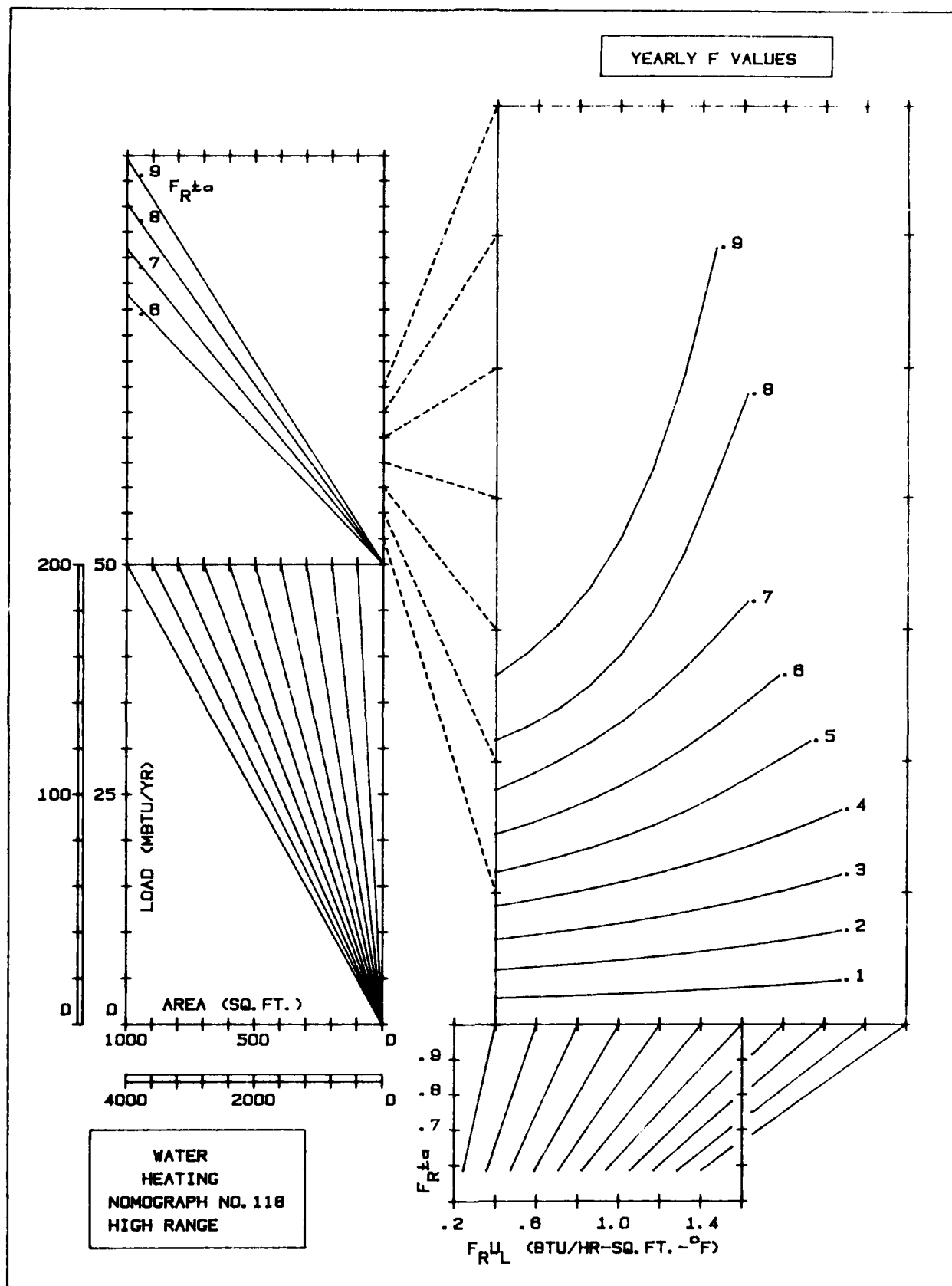
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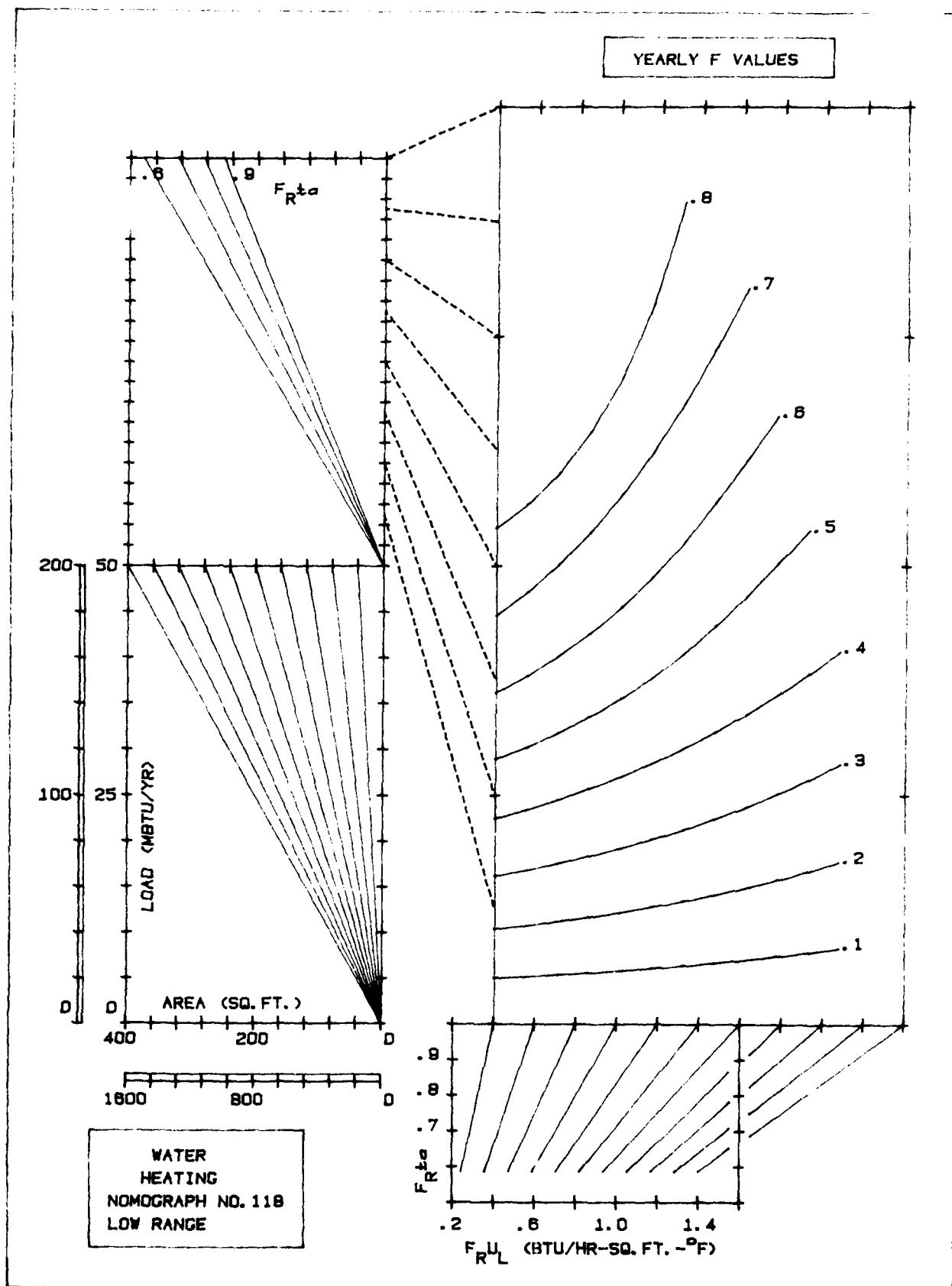
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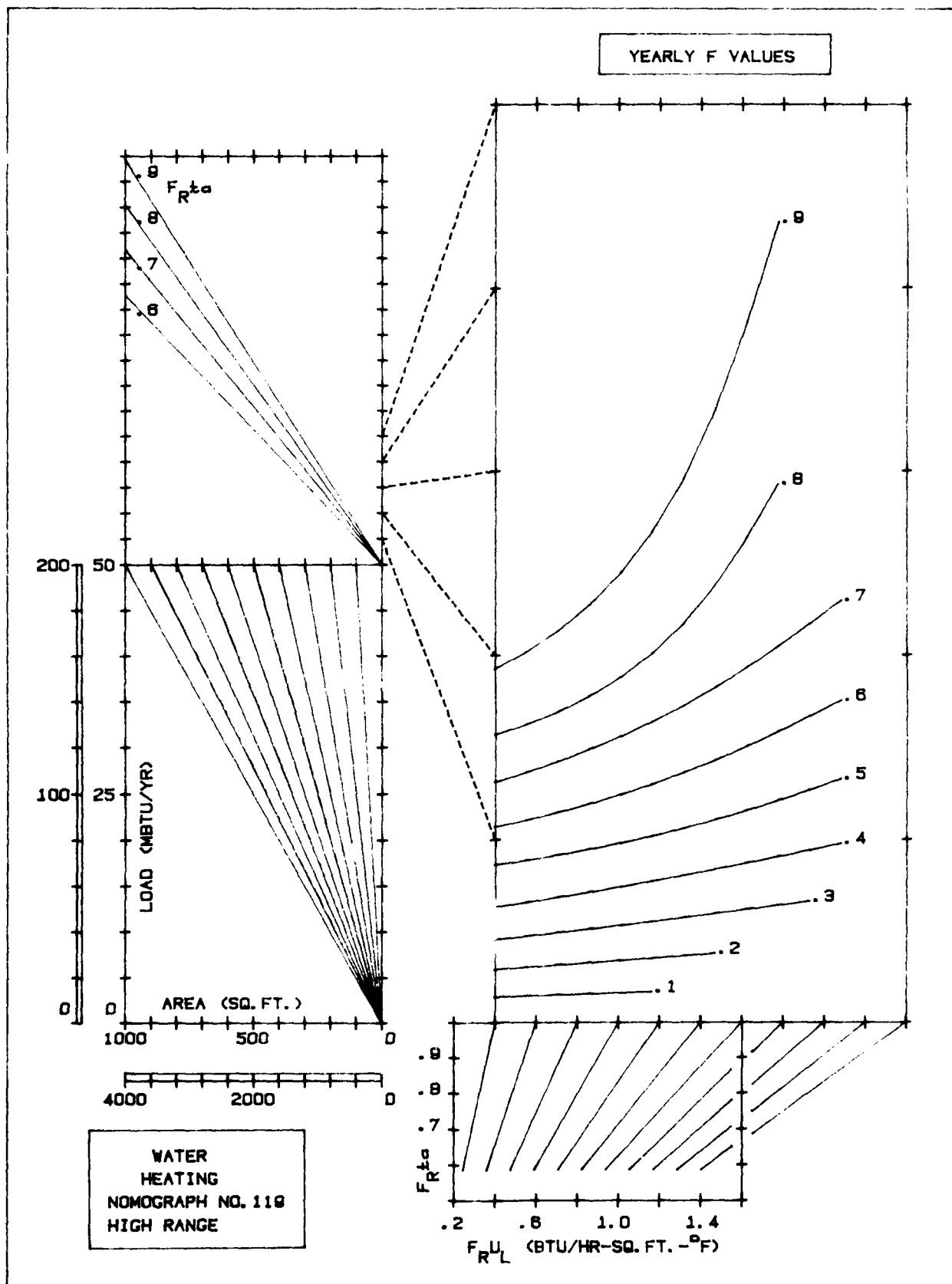
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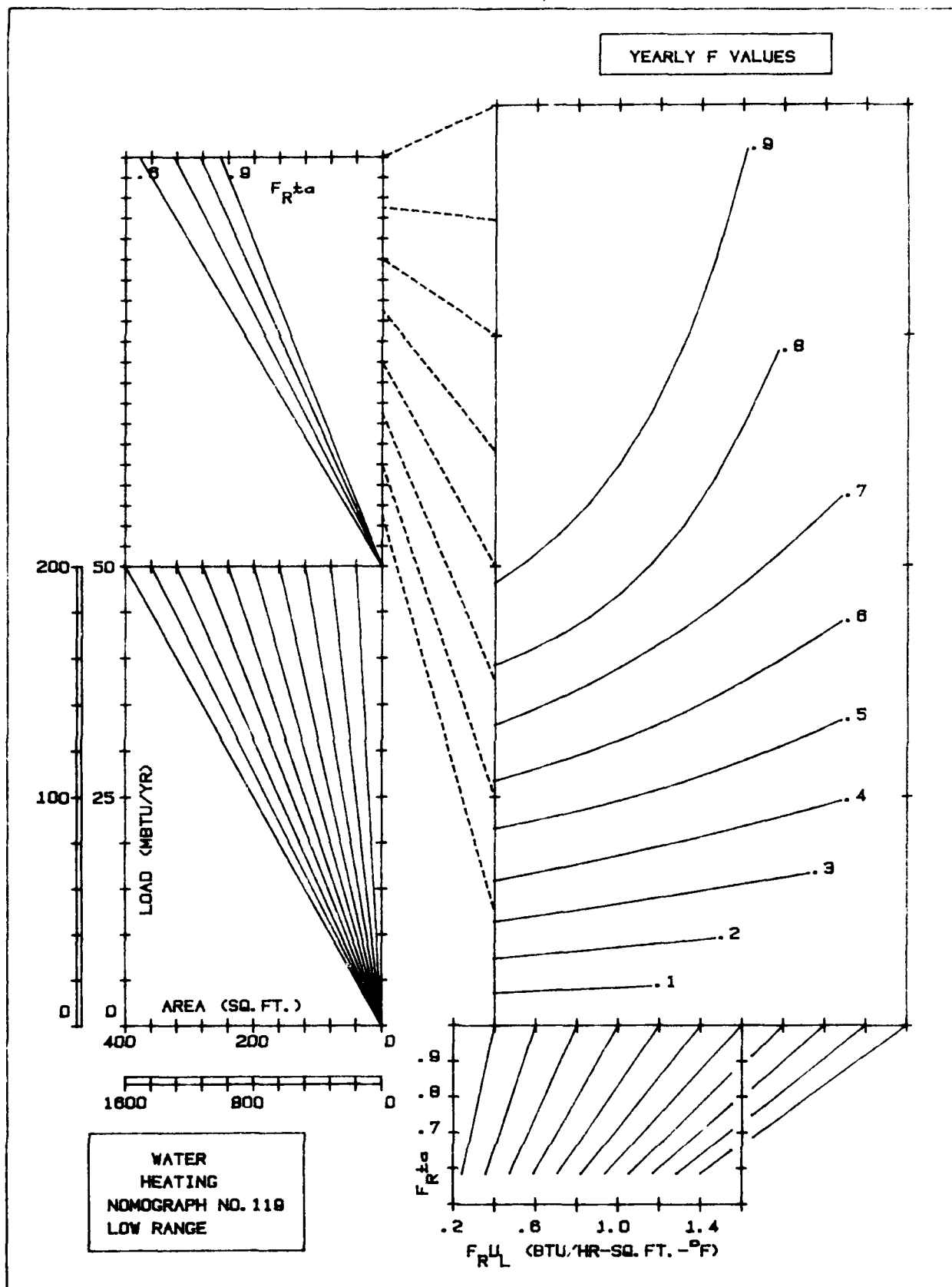
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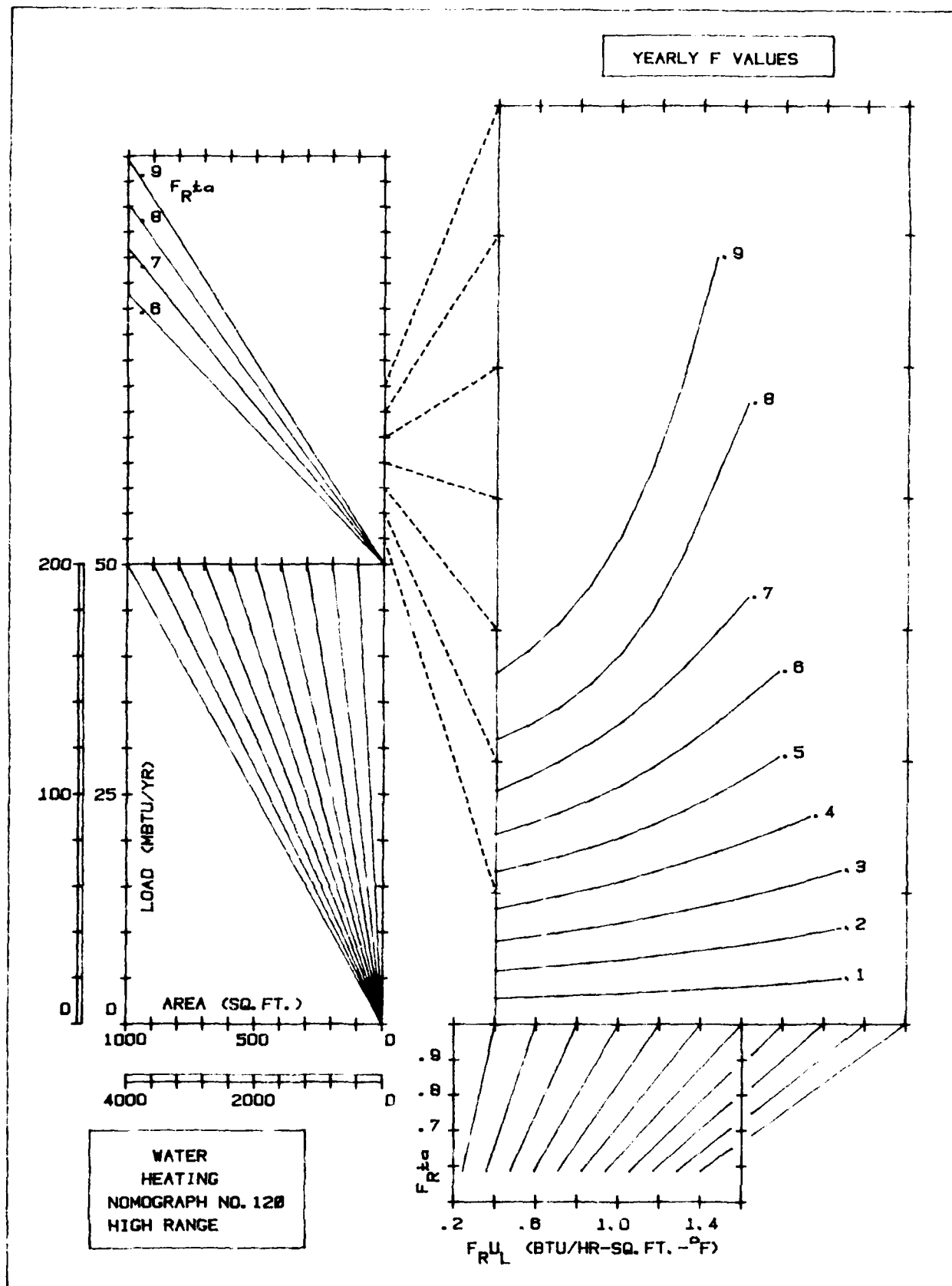
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AIR FORCE ACADEMY CO

F/G 13/1

SIMPLIFIED SOLAR FRACTION ESTIMATION FOR SPACE AND WATER HEATIN--ETC(U)

SEP 82 N S PACHECO, D G KNIOLA, J F SHEEDY

UNCLASSIFIED

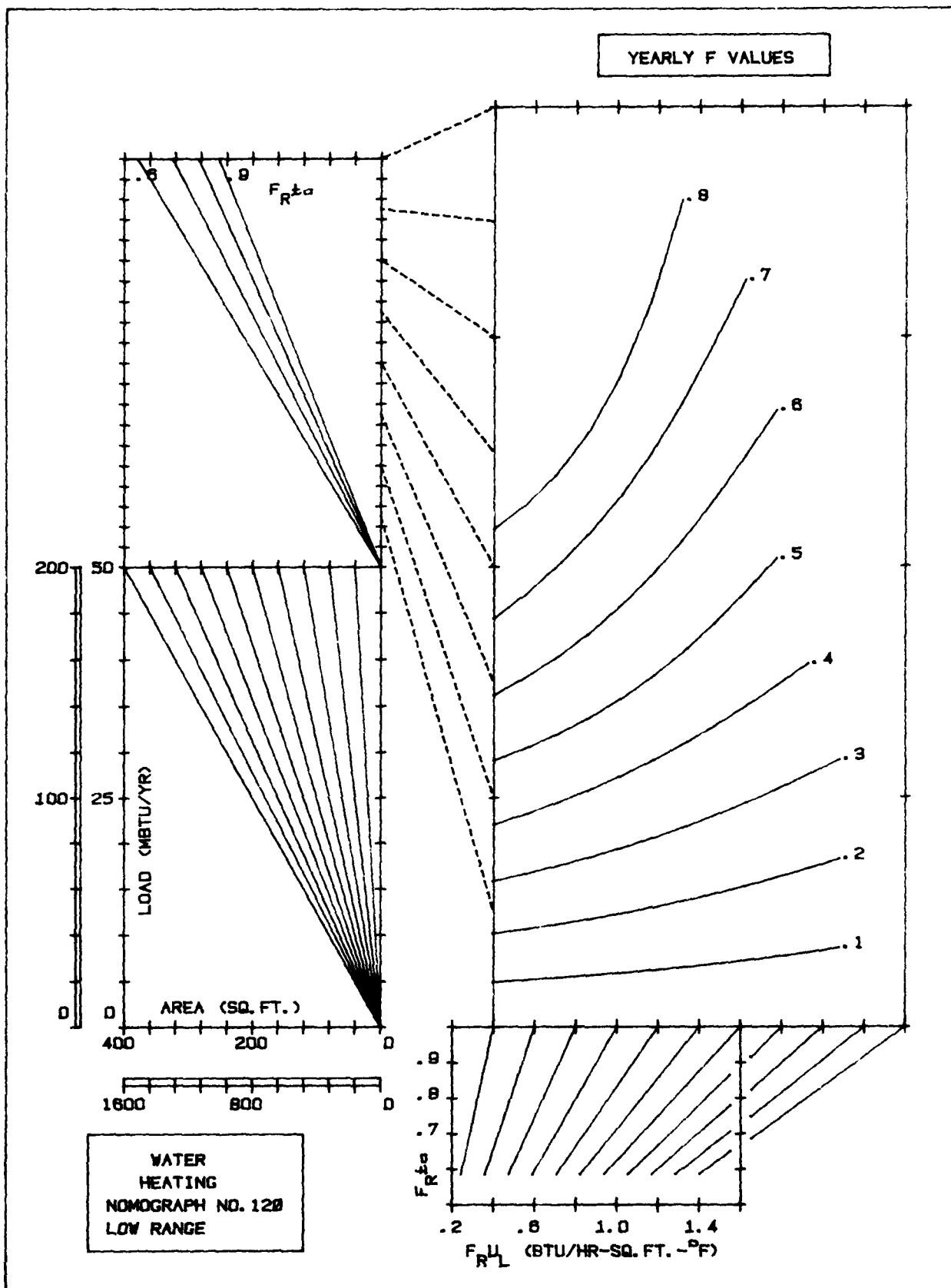
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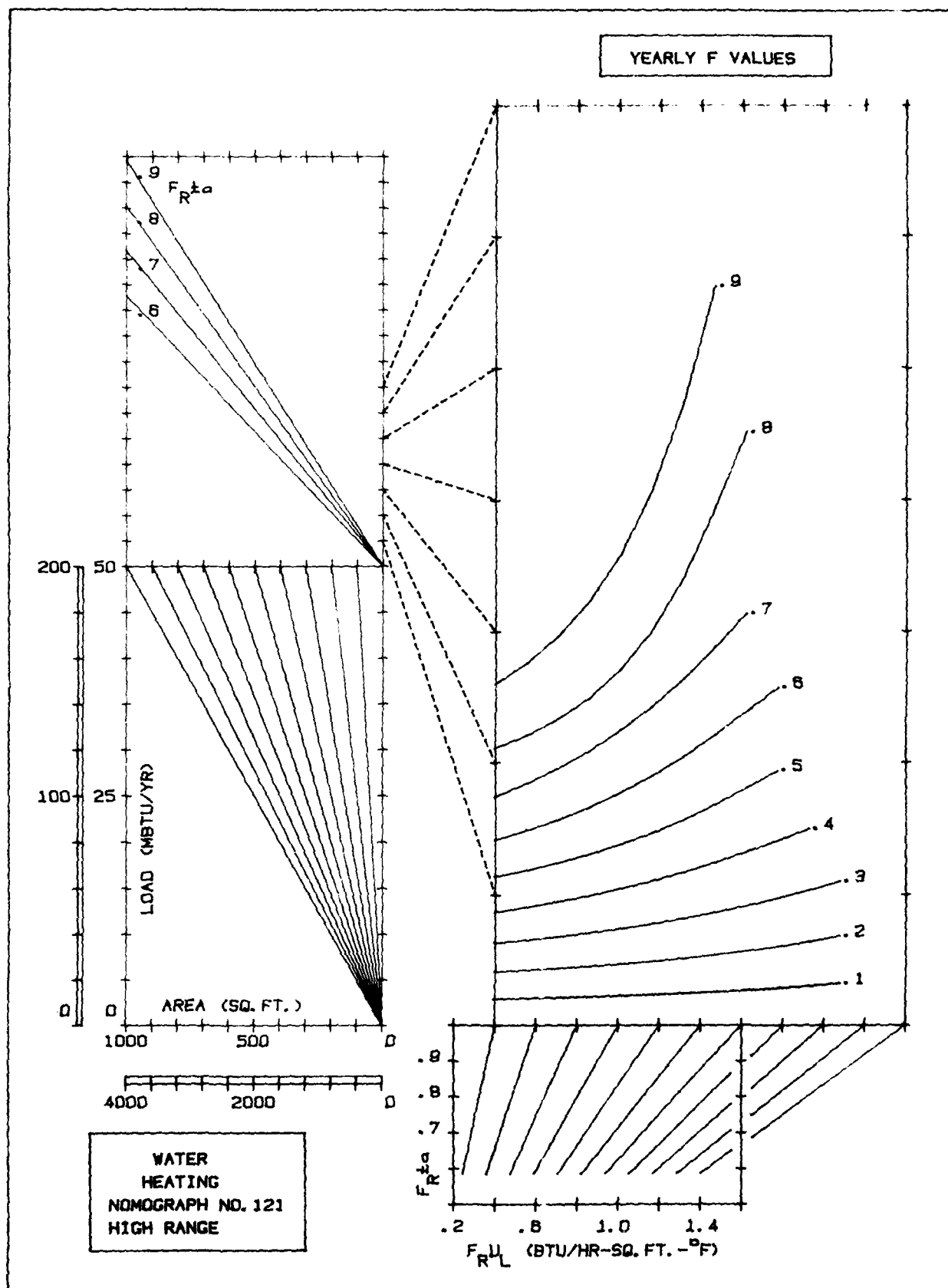
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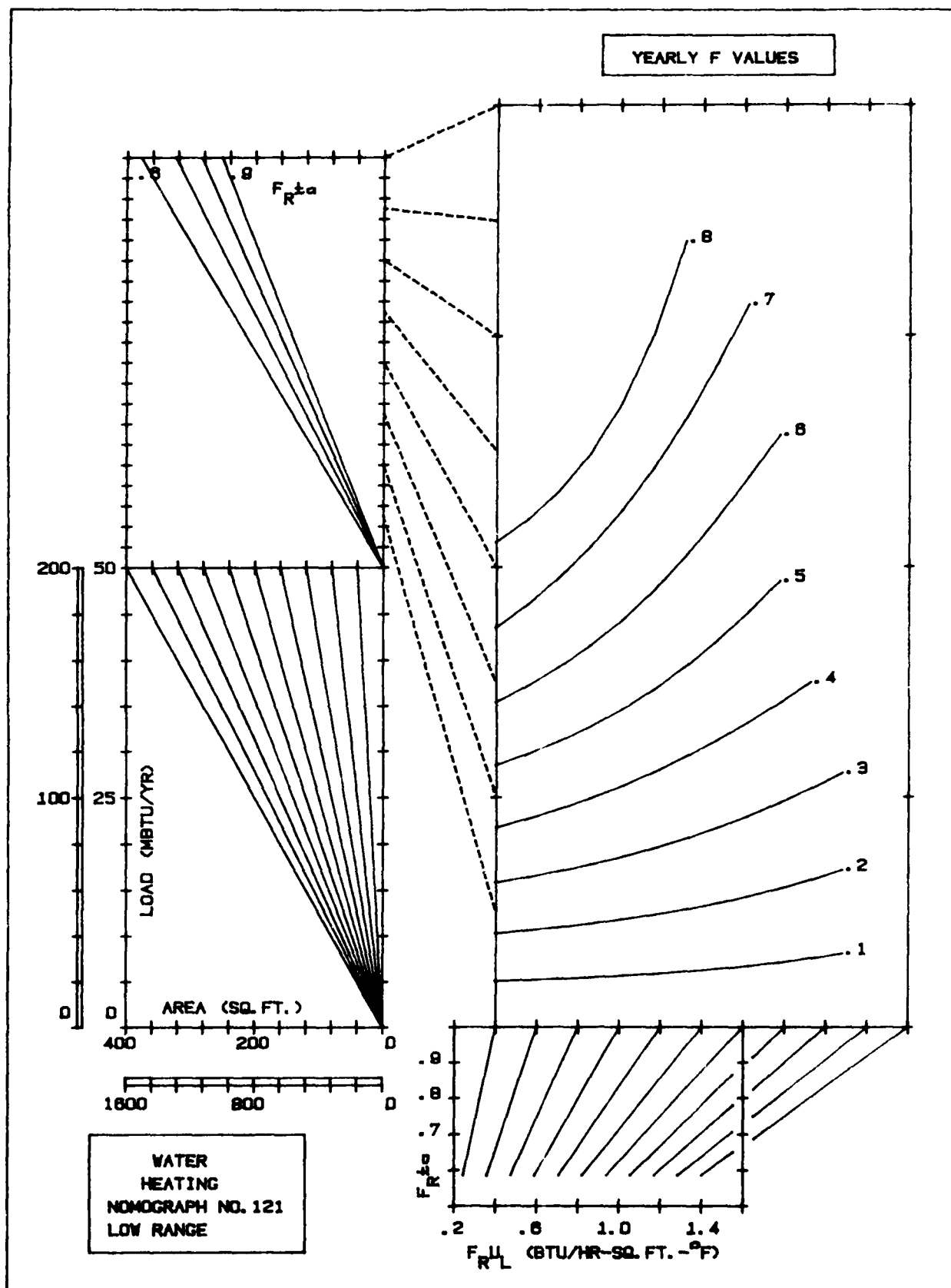
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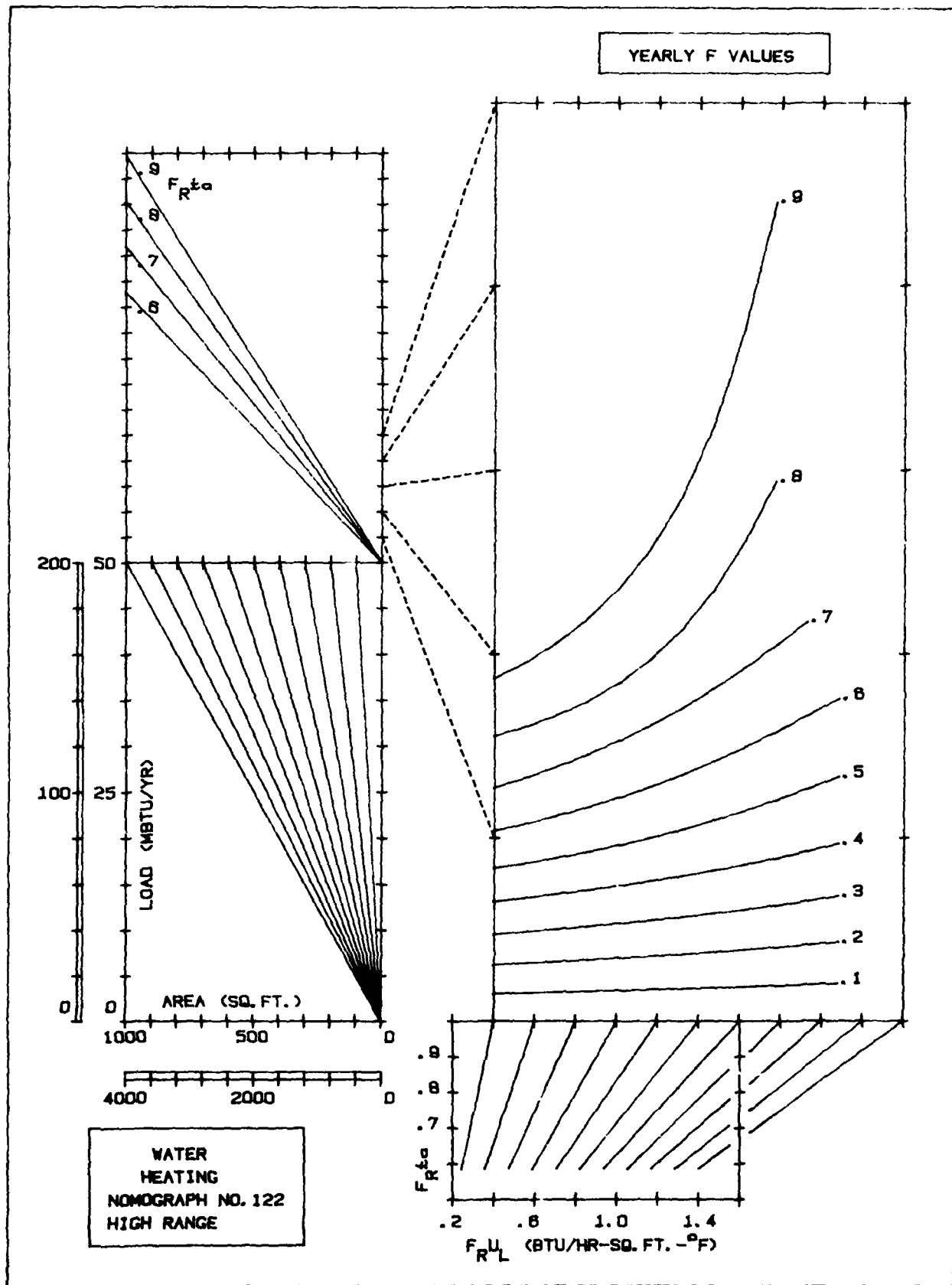


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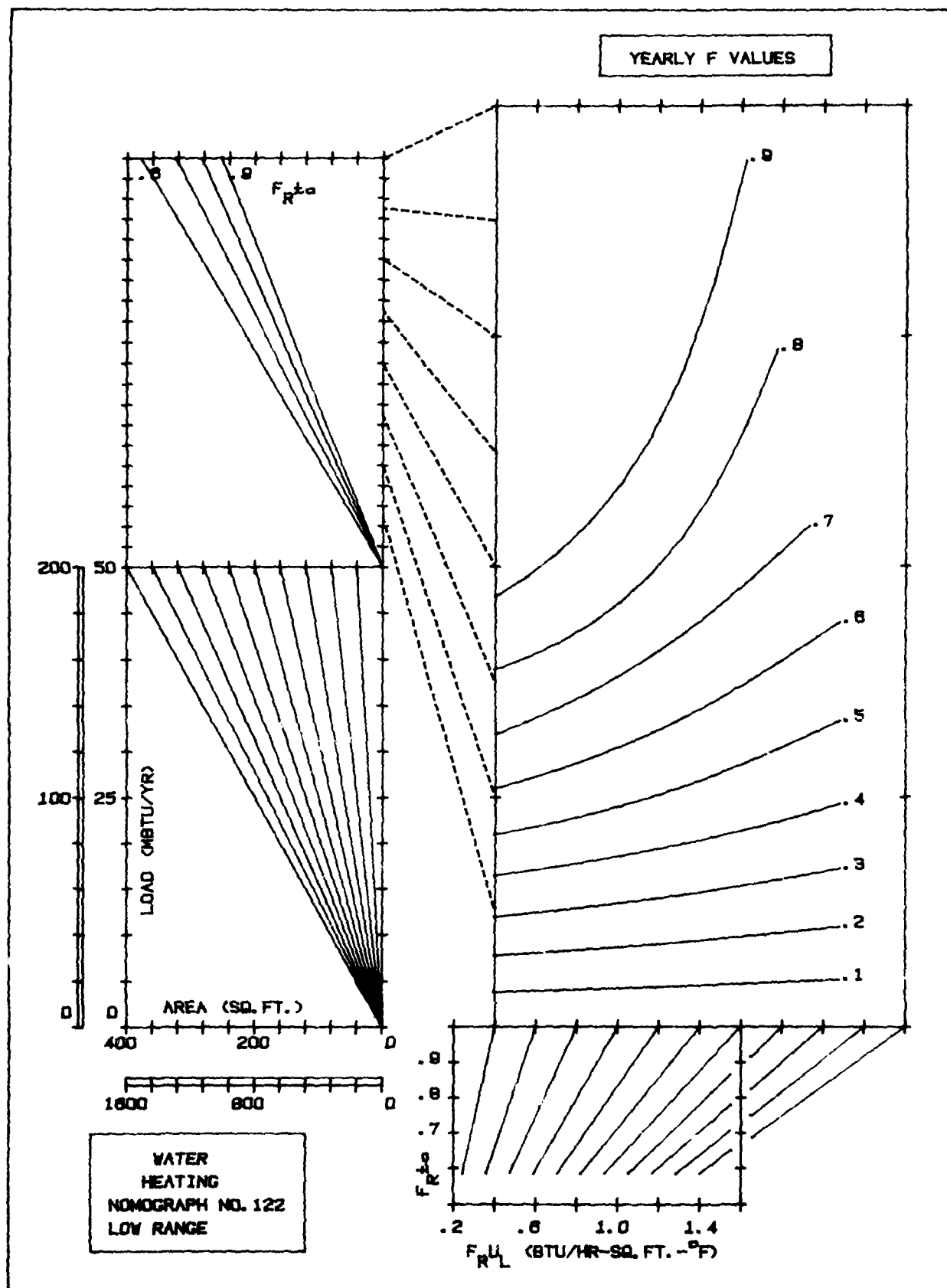


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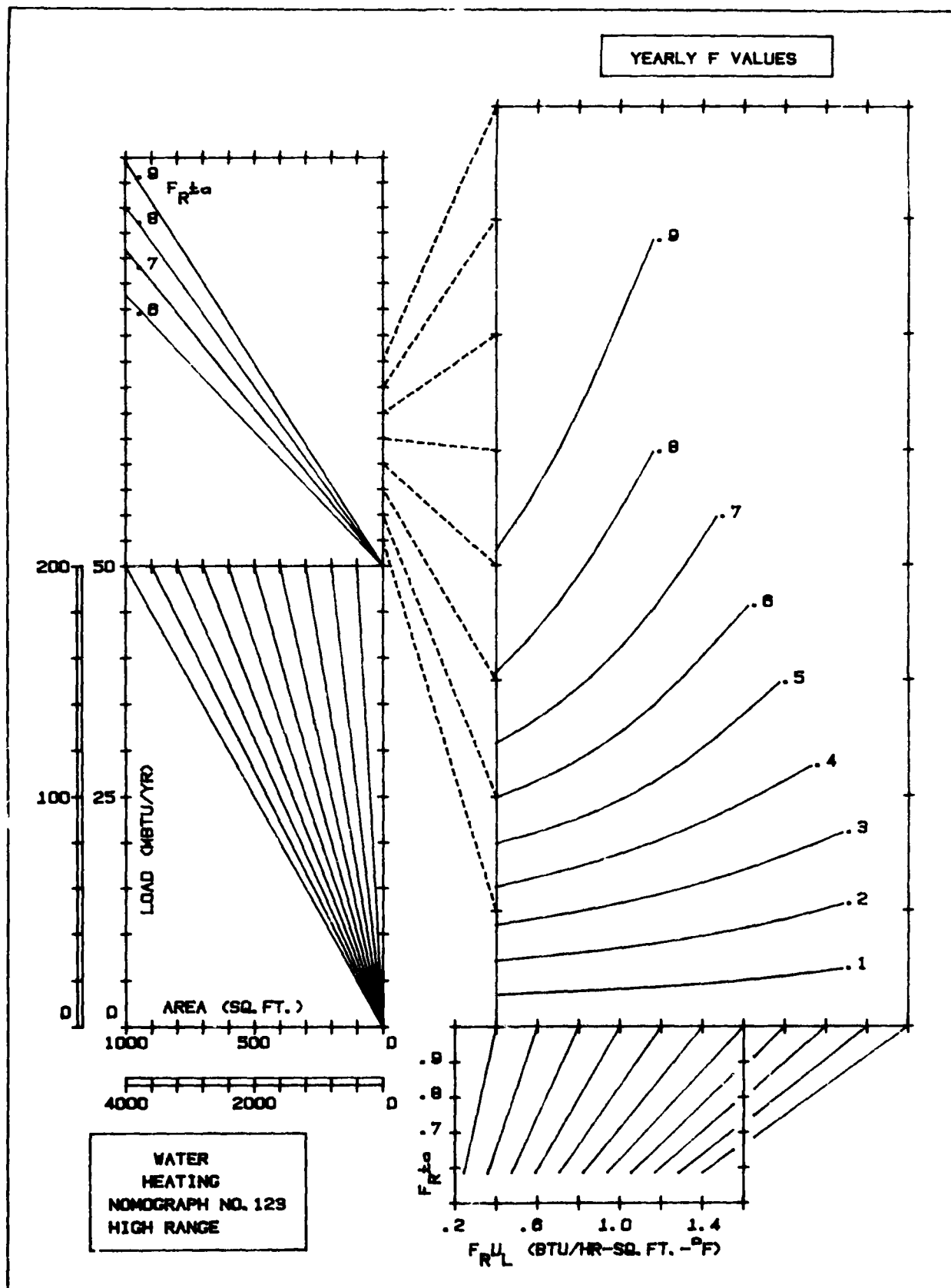
C192



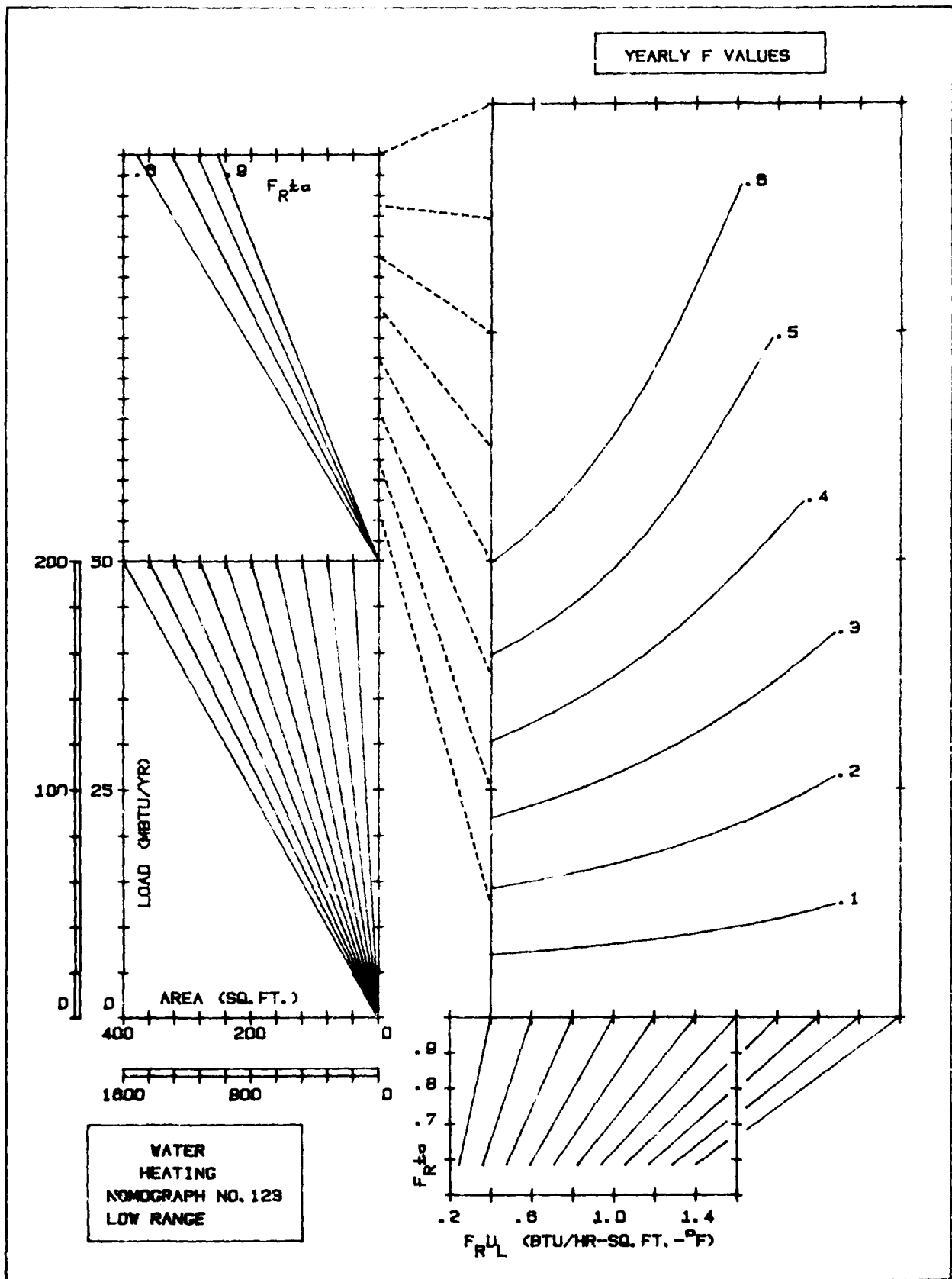
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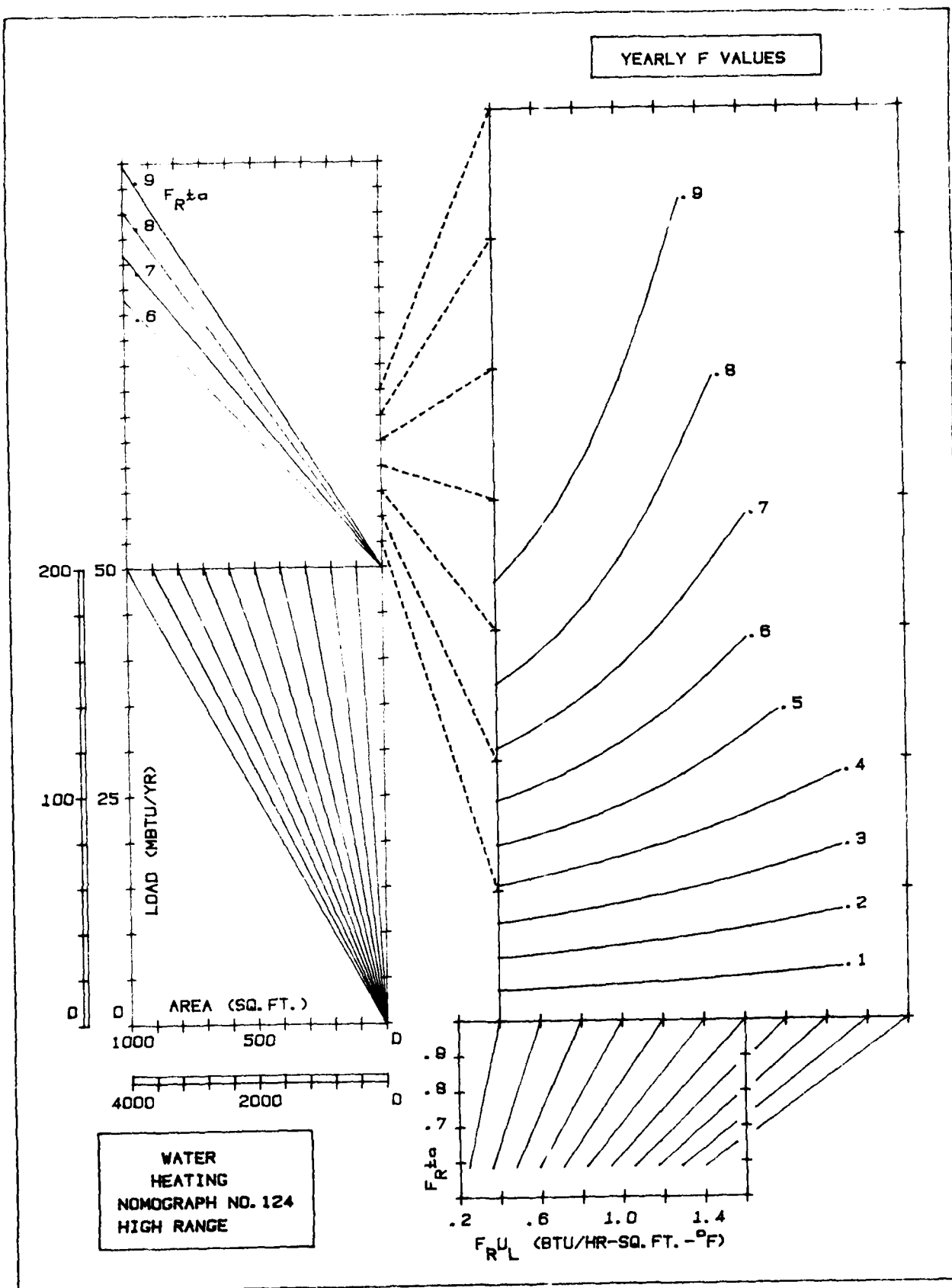
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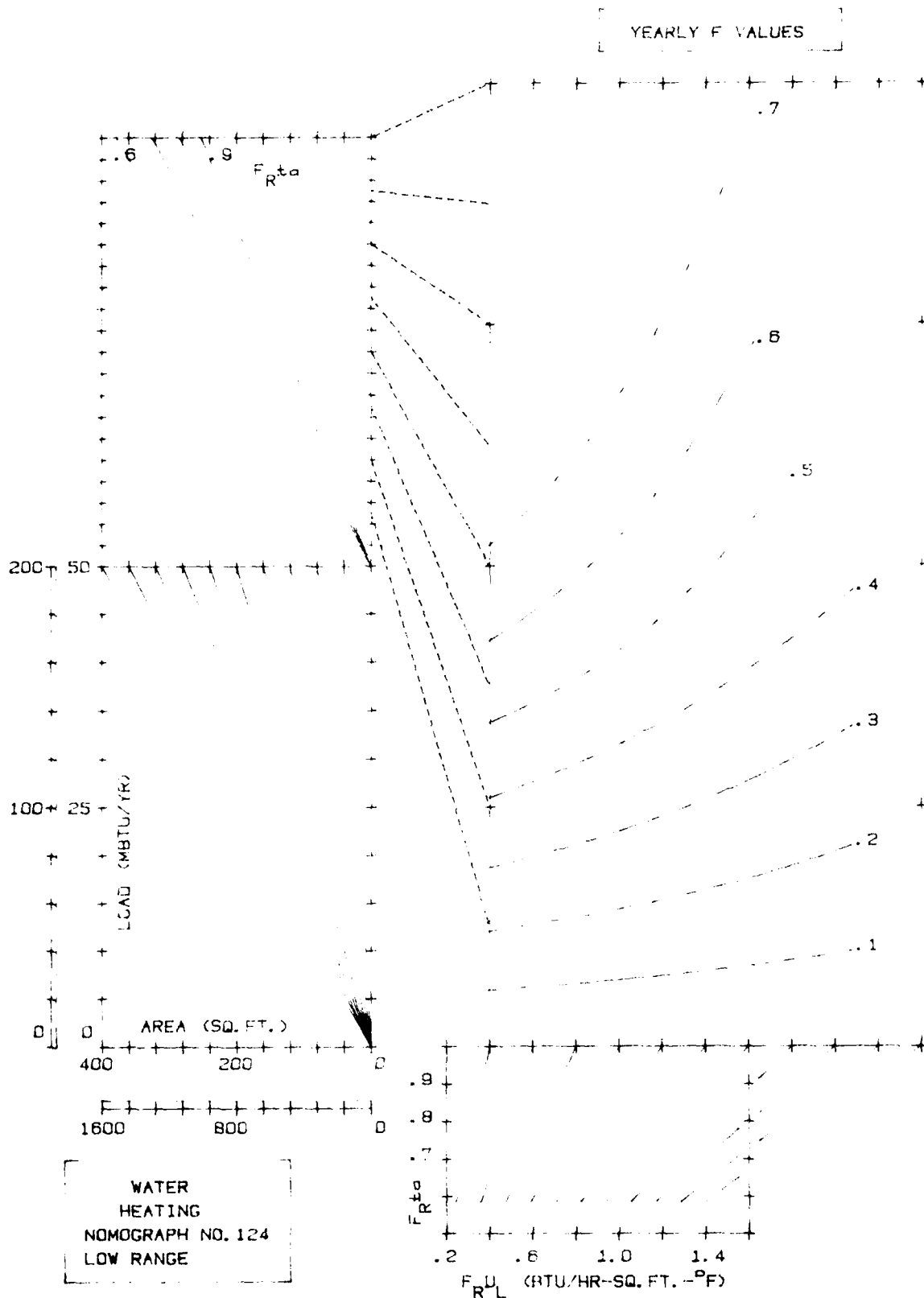
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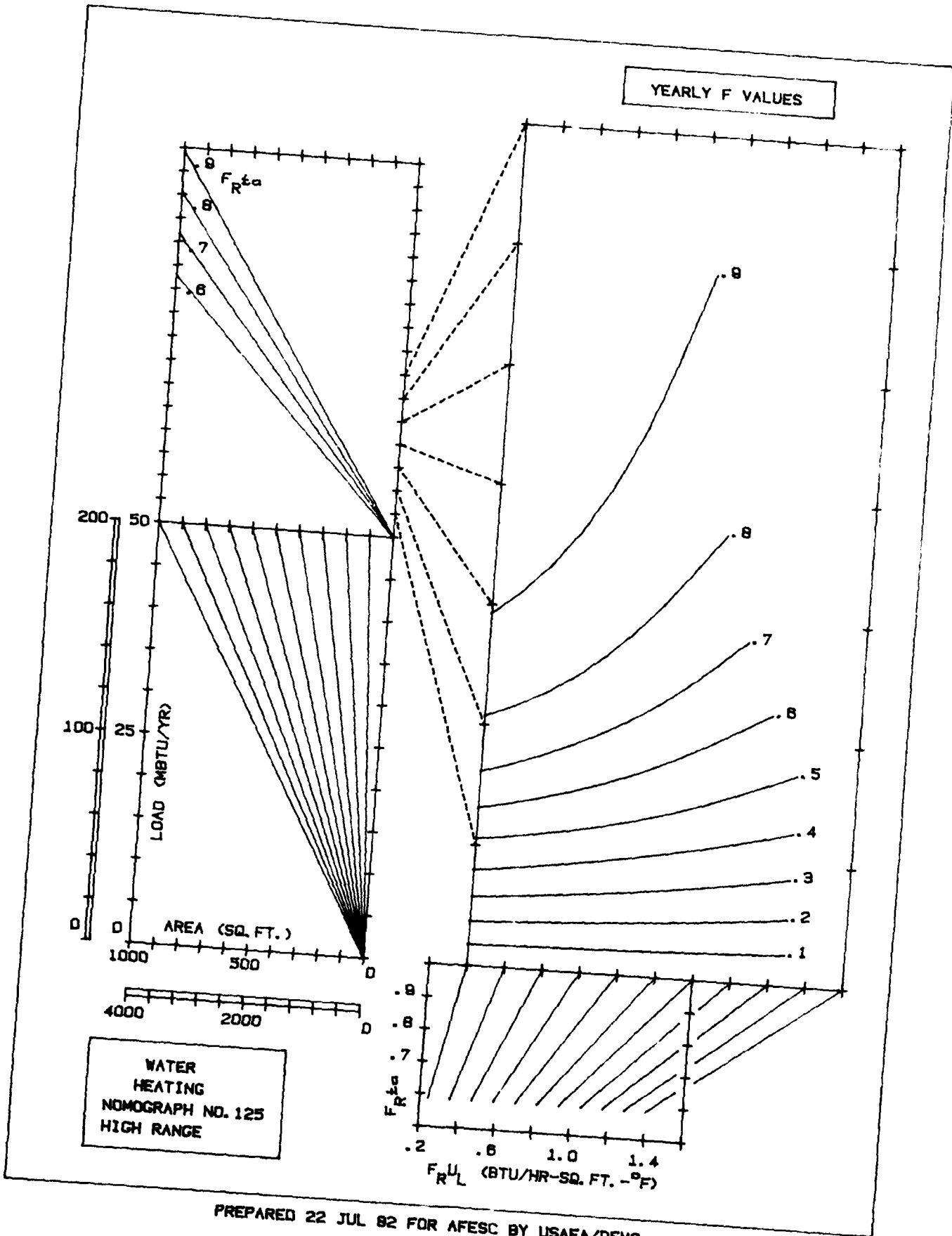
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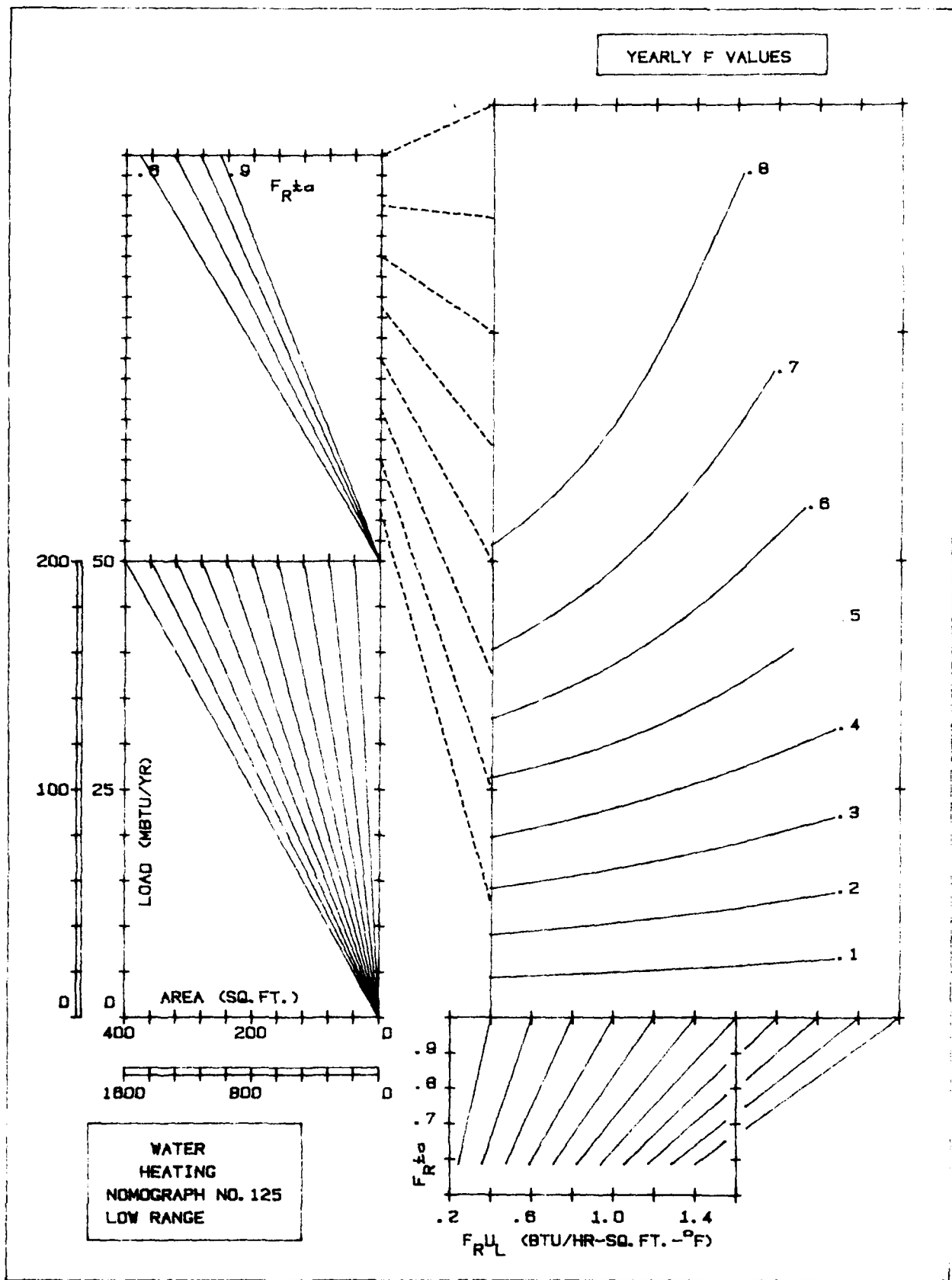
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PREPARED 22 JUL 82 FOR AFES: BY USAFA/DFMS

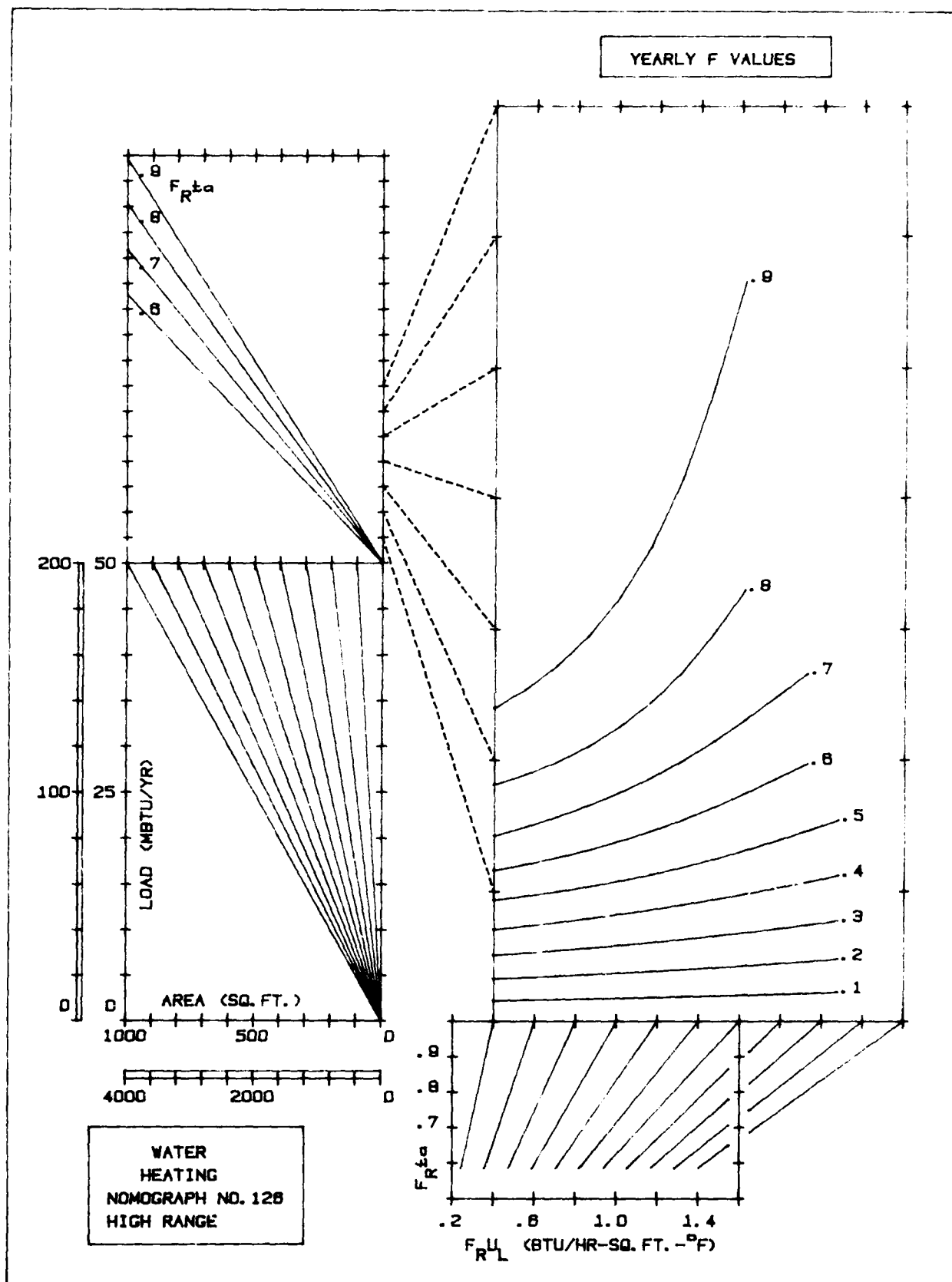


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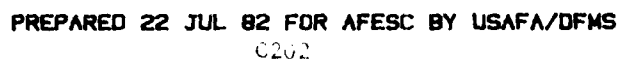
PREPARED 22 JUL 82 FOR AFESC BY USAFA/DFMS

C200



PREPARED 22 JUL 82 FOR AFESC BY USAFA/DFMS

C201



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